DOW PINES RECREATION AREA, HANCOCK COUNTY, MAINE

PHASE II ARCHEOLOGICAL EVALUATION OF SITE 75.5

Headquarters Air Combat Command
May 2001

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Dow Pines Recreation Area, Hancock County, Maine

Phase II Archeological Evaluation of Site 75.5

United States Air Force
Air Combat Command

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13. ABSTRACT (Maximum 200 words)

A Phase II evaluation of prehistoric archeological Site 75.5 on the northern shore of Great Pond, Hancock County, Maine, was conducted by John Milner Associates, Inc. The site was identified during an earlier Phase I archeological survey of the Dow Pines Recreation Area under the jurisdiction of the U.S. Air Force. The Phase II evaluation entailed the excavation of 9.5 1-x-1 m test units across the site area. Great Pond was dammed circa 90 years ago for a period of approximately 50 years, raising the water level approximately 10 ft above the current level. Site 75.5 was partially eroded while Great Pond was dammed. Approximately 50 square meters of the site (±8 m diameter) were buried and preserved under beach deposits as the water level in the lake decreased after the dam fell into disuse. The preserved archeological deposits date between A.D. 1240 and 1650 – the late Ceramic and Early Contact periods. Debitage flakes and unifacial tools or tool fragments, but no typologically diagnostic prehistoric artifacts, were recovered. The small unifacial tools, fashioned on a variety of non-local materials, are typical of the late Ceramic period in Maine. A possible gunflint made from non-European chert was recovered. Fire-cracked rock from the site resulted from open fires. Calcined (burnt) bone fragments of unidentifiable mammal, beaver, and probably deer bone were recovered chiefly from the beach deposits. The site is situated on a small point of land anchored to a prominent bedrock outcrop. The site receives the maximum amount of sunlight of any location on Great Pond throughout the year. The site was probably occupied as a convenient stop for small groups traveling up and down the Union River drainage system for hunting, trapping, and other activities. Hides or furs may have been processed on the site. The site is considered not eligible to the National Register of Historic Places.

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PREFACE

The principal investigator for the Dow Pines project and author of this report was Dr. Douglas C. Kellogg. Dr. Kellogg passed away most untimely in April, 2001, prior to receipt of agency comments on the draft report. Accordingly, all agency comments were addressed by Dr. Robert G. Kingsley, who also performed editing and production of the present final report.

ABSTRACT

A Phase II evaluation of prehistoric archeological Site 75.5 on the northern shore of Great Pond, Hancock County, Maine was conducted by John Milner Associates, Inc. The site was identified during an earlier Phase I archeological survey of the Dow Pines Recreation Area under the jurisdiction of the U.S. Air Force. The Phase II evaluation entailed the excavation of 9.5 1-x-1-m test units across the site area. Great Pond was dammed *circa* 90 years ago for a period of approximately 50 years, raising the water level approximately 10 ft above the current level. Site 75.5 was partially eroded while Great Pond was dammed. Approximately 50 square meters of the site (±8 m diameter) were buried and preserved under beach deposits as the water level in the lake decreased after the dam fell into disuse. The preserved archeological deposits date between A.D. 1240 and 1650—the late Ceramic and Early Contact periods. Debitage flakes and unifacial tools or tool fragments, but no typologically diagnostic prehistoric artifacts, were recovered. The small unifacial tools, fashioned on a variety of non-local materials, are typical of the late Ceramic period in Maine. A possible gunflint made from a non-European chert was recovered. Fire-cracked rock from the site resulted from open fires. Calcined (burnt) bone fragments of unidentifiable mammal, beaver, and probably deer bone were recovered chiefly from the beach deposits. The site is situated on a small point of land anchored to a prominent bedrock outcrop. The site receives the maximum amount of sunlight of any location on Great Pond throughout the year. The site was probably occupied as a convenient stop for small groups traveling up and down the Union River drainage system for hunting, trapping, and other activities. Hides or furs may have been processed on the site. The site is considered not eligible to the National Register of Historic Places.

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1.0 INTRODUCTION

1.1 Project Description

The Dow Pines Recreation Area (hereafter Dow Pines) encompasses four parcels of land on three lakes in Hancock County, Maine (Figure 1). Two parcels on Great Pond total 384 acres (Figure 2). The third parcel is a narrow strip of land along King Pond encompassing six acres. The fourth parcel is six acres on Alligator Lake. The U.S. Air Force (USAF) acquired the land in 1956. Between 1956 and 1966, the land was used as a recreational facility for U.S. military personnel under the jurisdiction of Dow Air Force Base in nearby Bangor, Maine. After the closing of Dow Air Force Base in 1966, the Dow Pines property was transferred to Loring Air Force Base in Washington County, Maine. Loring Air Force Base, in turn, closed in 1992, and Dow Pines has been closed since September, 1992. The USAF is planning to transfer Dow Pines to the U.S. Navy in accordance with federal procedures. Under the provisions of the National Historic Preservation Act of 1966, as amended; the Archeological and Historical Preservation Act of 1974, as amended; the National Environmental Polity Act of 1969; and Executive Order #11593, the USAF is required to assess the effects of this proposed action on historic properties.

Great Pond is part of the Union River drainage system (Figure 1). Upstream of Great Pond, the West Branch of the Union River connects with canoe routes throughout eastern Maine by way of portages into the Passadumkeag River system (Cook 1985:62-64). Downstream, the east and west branches of the Union River both flow into the north end of Graham Lake north of Ellsworth, Maine. The mouth of the Union River is on Union River Bay–an arm of Blue Hill Bay–west of Mount Desert Island. The head of tide in the river is at Ellsworth Falls.

The project region lies within the hills of the Seaboard Lowlands physiographic zone. The glaciated hills are composed of granitic volcanic rocks of Devonian age intrusive into Silurian-aged metamorphosed sedimentary rocks of the Coastal Litho-tectonic Block (Osberg et al. 1985). The Norumbega Fault Zone crosses perpendicular to the northwest end of Great Pond (Osberg et al. 1985) and the shape of the lake is related, in part, to the fault. The eastern end of Great Pond is underlain by the Lucerne Granite (Griffin 1976) which crops out along the shore to form prominent rocky points at intervals, including the point at Site 75.5.

The region was glaciated most recently in the Late Pleistocene during the Wisconsinan episode (Borns et al. 1985). Ice flow was generally from the northwest to southeast and many features of the landscape are glacially stream-lined (Holland 1986a, b). Deglaciation of the project region occurred between 13,000 and 12,000 radiocarbon years ago (Smith 1985:39-41). Ice retreated from the present coast in contact with the sea, but isostatic rebound of the earth's crust separated the ice and sea before the margin reached north into the project vicinity. Glacial ice in Maine became isolated from the continental Laurentide ice sheet over Canada during deglaciation of the St. Lawrence River valley (Borns et al. 1985). Remnant ice in Maine wasted away leaving a variety of meltwater features including eskers, kame terraces, meltwater channels and glacial stream deposits (Caldwell et al. 1985; Holland 1986a, b). The surficial geology of around Great Pond is dominated by till (Holland 1986a, b; Thompson and Borns 1985). Thus, Site 75.5 is in a hilly, glaciated area of ancient rocks covered by stony till soils.

Prehistoric archeological Site 75.5 was identified on the north side of Great Pond (Figures 2 and 3) during a Phase I archeological survey and architectural assessment of Dow Pines (Kellogg and McVarish 2000). A Phase II evaluation of the site was recommended. Thus, the purpose of the present project was to evaluate the eligibility or ineligibility of Site 75.5 to the National Register of Historic Places (Appendix I). John Milner Associates, Inc. (JMA) was contracted by Geo-Marine, Inc. to assist in the

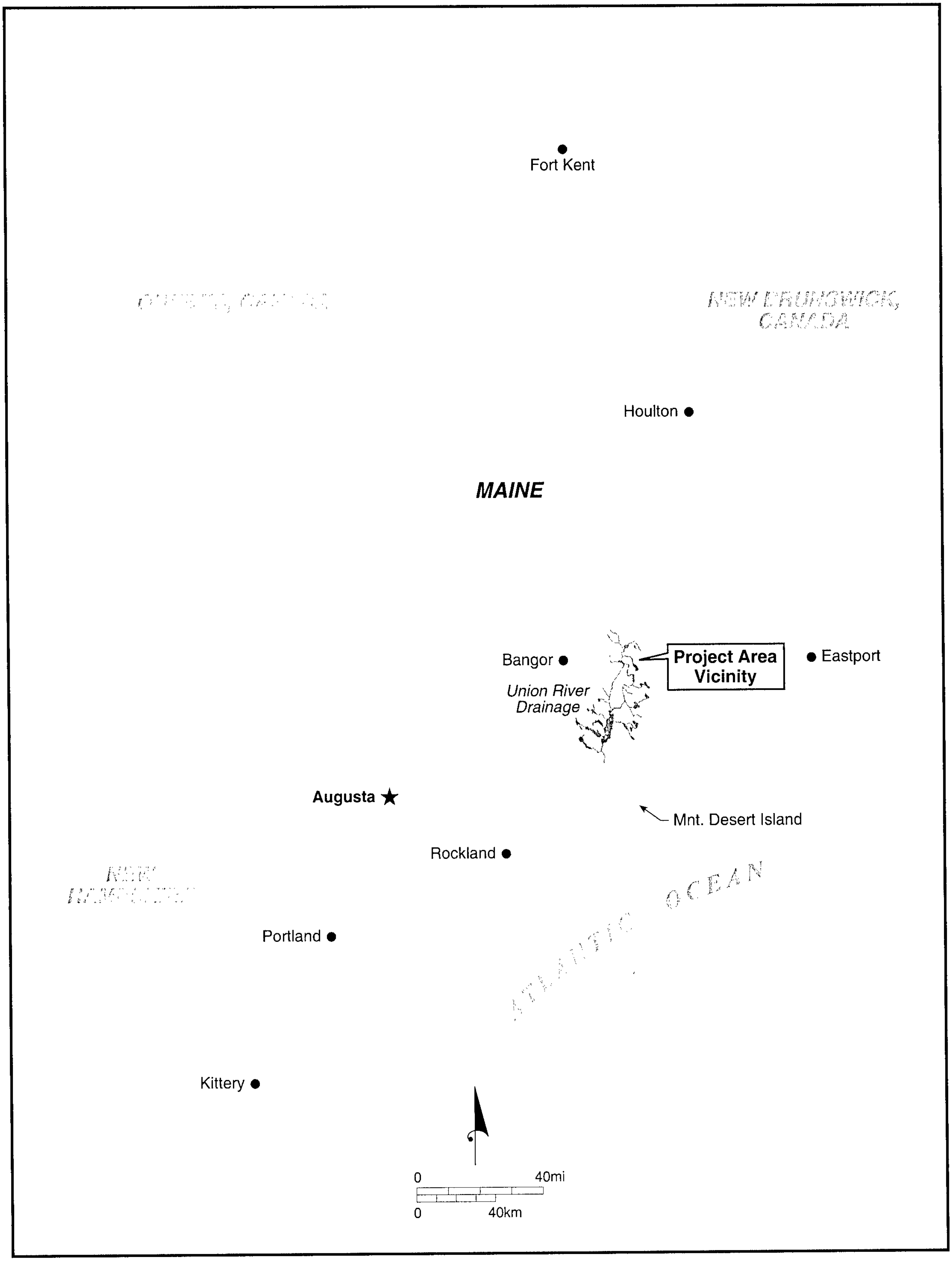


Figure 1. Location of the Dow Pines Recreation Area and Union River drainage system in eastern Maine.

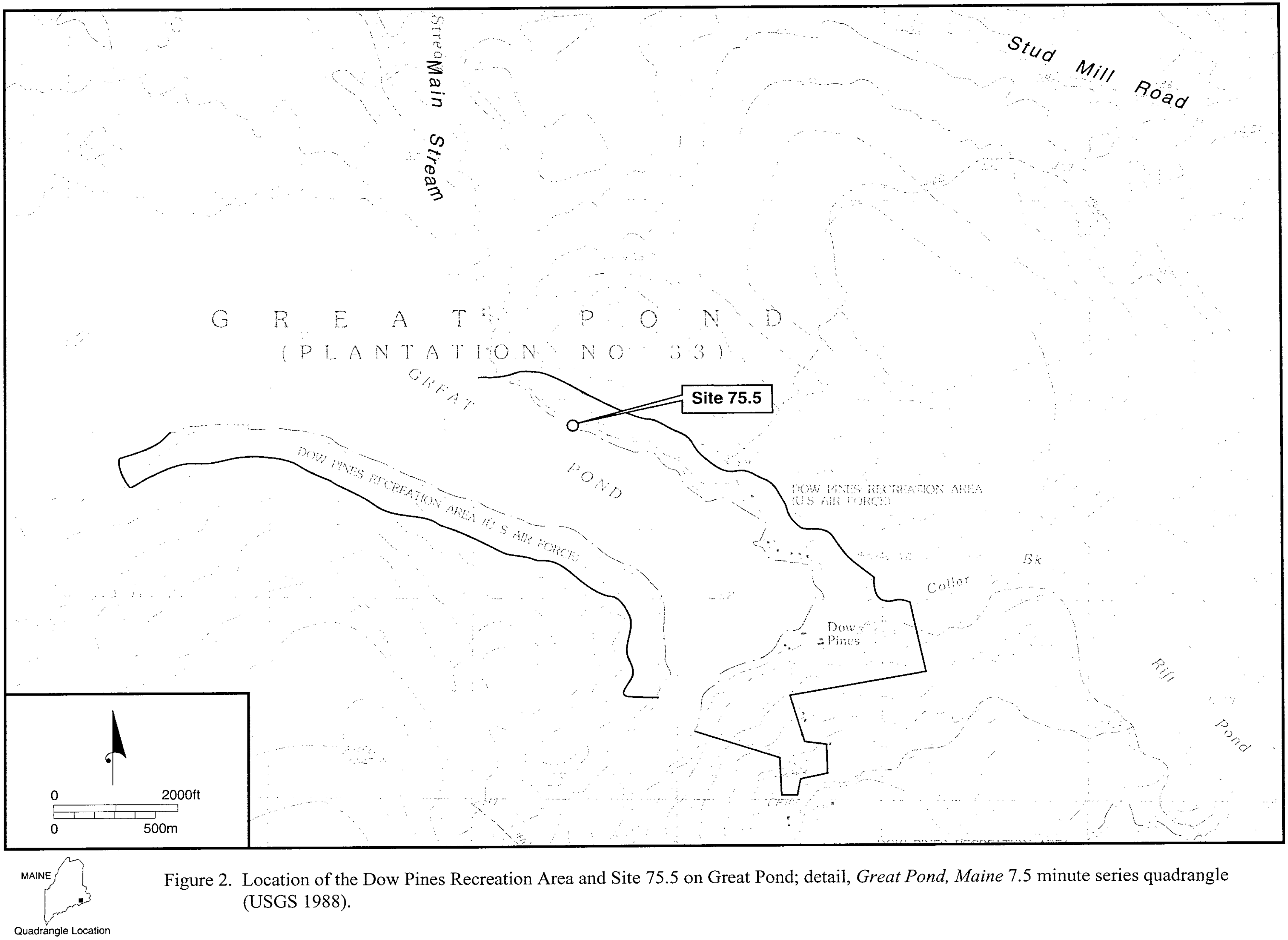


Figure 2. Location of the Dow Pines Recreation Area and Site 75.5 on Great Pond; detail, *Great Pond, Maine* 7.5 minute series quadrangle (USGS 1988).

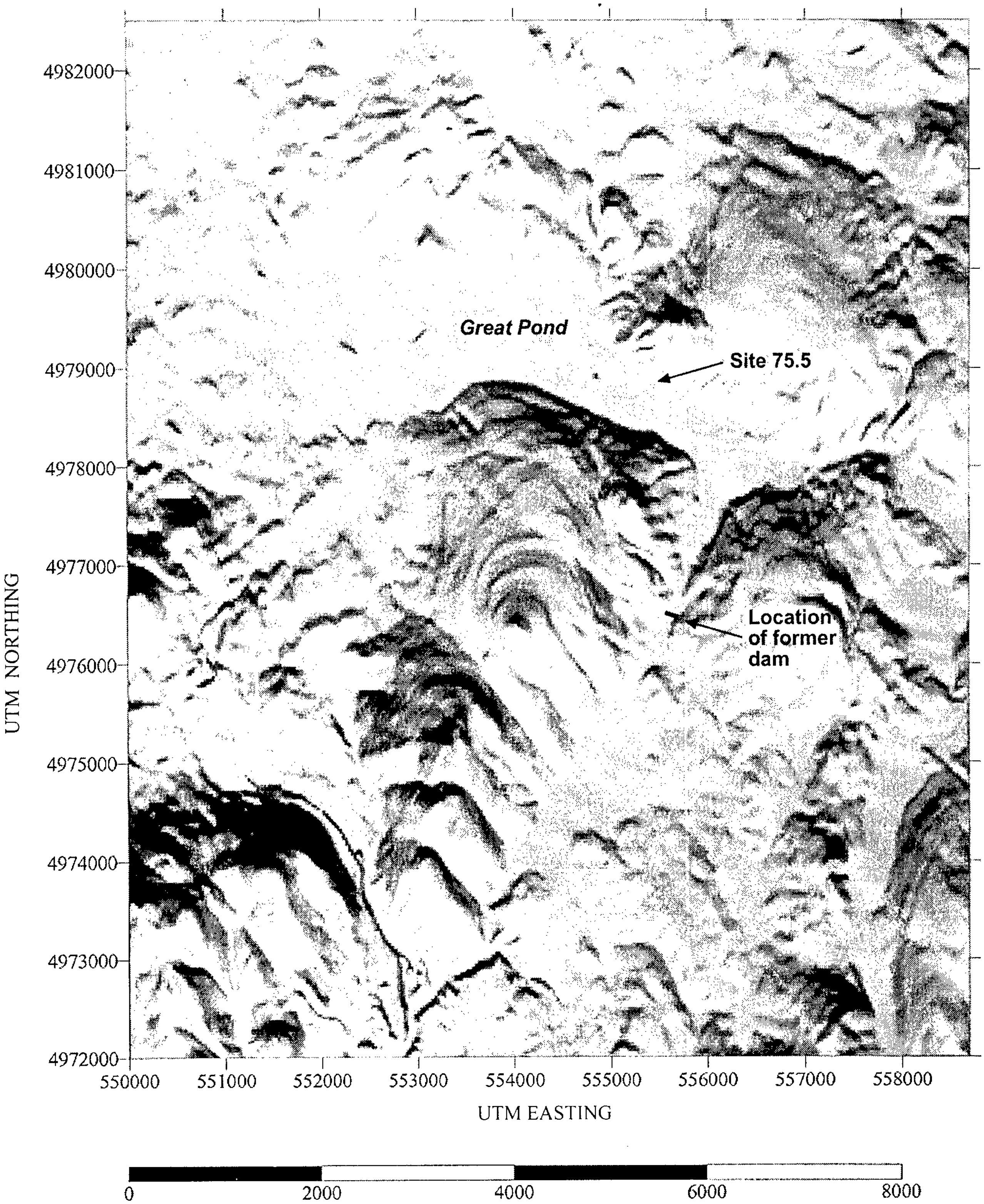


Figure 3. Topography of the project vicinity based on a digital elevation model. Shaded relief map with the sun shining from due south.

current project in accordance with Maine State Law (27 MRSA S.509) which established lists of approved archeologists for projects in the state. The project was conducted in accordance with the *Contract Archaeology Guidelines* (1992) of the Maine Historic Preservation Commission (MHPC), the Secretary of the Interior's *Standards and Guidelines* for Archeology and Historic Preservation (1983), and the revised regulations (36 CFR 800) of the Advisory Council on Historic Preservation (1999).

1.2 Previous Investigations

Site 75.5 was identified in Subsurface Survey Area 5 on a small point of land bordered by beaches facing to the east and west anchored by a large bedrock outcrop (Figure 4; Plate 1). The west-facing beach is broader and sandier than the beach to the east. An erosional scarp is present along the eastern shore, as well. Behind (north of) the prominent granite bedrock outcrop at the tip of the small point, the ground surface is covered by sand and small rounded gravels. Ground cover is sparse. A large rhyolite flake was found on the surface in this area. To the north, the ground is covered by conifer-needle and leaf litter. The two terraces, or benches, are separated by a low erosional scarp at the high water mark of a former dammed lake level. A more significant erosional scarp is present to the west of the benches. To the east, north, and west, the ground slopes more steeply. Thus, a triangular area of approximately 200 square meters is habitable.

Three transects of STUs were excavated during the Phase I survey of Site 75.5 (Figure 4). Transects 1 and 2 were on the lower terrace, and Transect 3 was along the higher terrace farther from the lake shore. STUs in Transect 3 encountered thin soils developed on glacial till. STUs in Transects 1 and 2, below the erosional scarp, encountered sand and gravel beach deposits ranging from 35 to 60 cm thick, overlying truncated till soils (Figure 5). A limited area of intact soil horizons was identified centrally on the lower bench. None of the STUs in Transect 3 above the dammed lake level yielded cultural material. One STU each in Transects 1 and 2 yielded prehistoric artifacts. Radial STUs were excavated around the positive STU at four meter intervals. Artifacts were recovered from three of the radials. Five of the nineteen STU excavated during the Phase I survey yielded prehistoric artifacts (Table 1; Appendix II); however, the artifacts were recovered from redeposited beach lags in two of the STUs (Table 1). A small quantity (675 grams) of fire-cracked rock (FCR) was recovered from the preserved A-horizon soil in STU 2-1S. Some charcoal was present in the A-horizon soil, but the association between the FCR and the charcoal could not be clearly established in the STU excavations at a depth of 45 cm below the ground surface. Three unifacial tools fashioned on debitage flakes were recovered from STU 2-1S in apparent association with the FCR. The evidence suggested a work area around a hearth feature. No diagnostic artifacts were recovered from the STU excavations; consequently, a temporal age or cultural affiliation could not be assigned to the site.

Intact A-soil horizons were encountered in STUs 2-1 and 2-1S. It appears that the shore line at the higher, dammed lake level was eroded along a 15 meter wide strip parallel to the low erosional scarp. Material eroded from the shore was redeposited at lower elevation, protecting a small area of former upland soils from erosion (Figure 5). At the undammed (current) lake level, the tip of the point of land behind the bedrock outcrop is probably over-washed during storms blowing from the west. Artifacts recovered from the beach deposits were most likely derived from an archeological site at this locality. A small area of the site remains intact beneath the beach deposits. An archeological feature is probably associated with the intact soils.

Site 75.5 is on a small point of land with a commanding view of the lake. The beach on the west side of the point is ideal for landing small boats, whereas the lake shore to the east and farther west is rocky with an erosional scarp. Ingress and egress between the land and water may be the determining factor in the location of the site at this locality. Neither the inlet or outlet streams are visible from the site, but the main body of Great Pond can be seen. The large bedrock outcrop at the tip of the point provides both a vantage point and

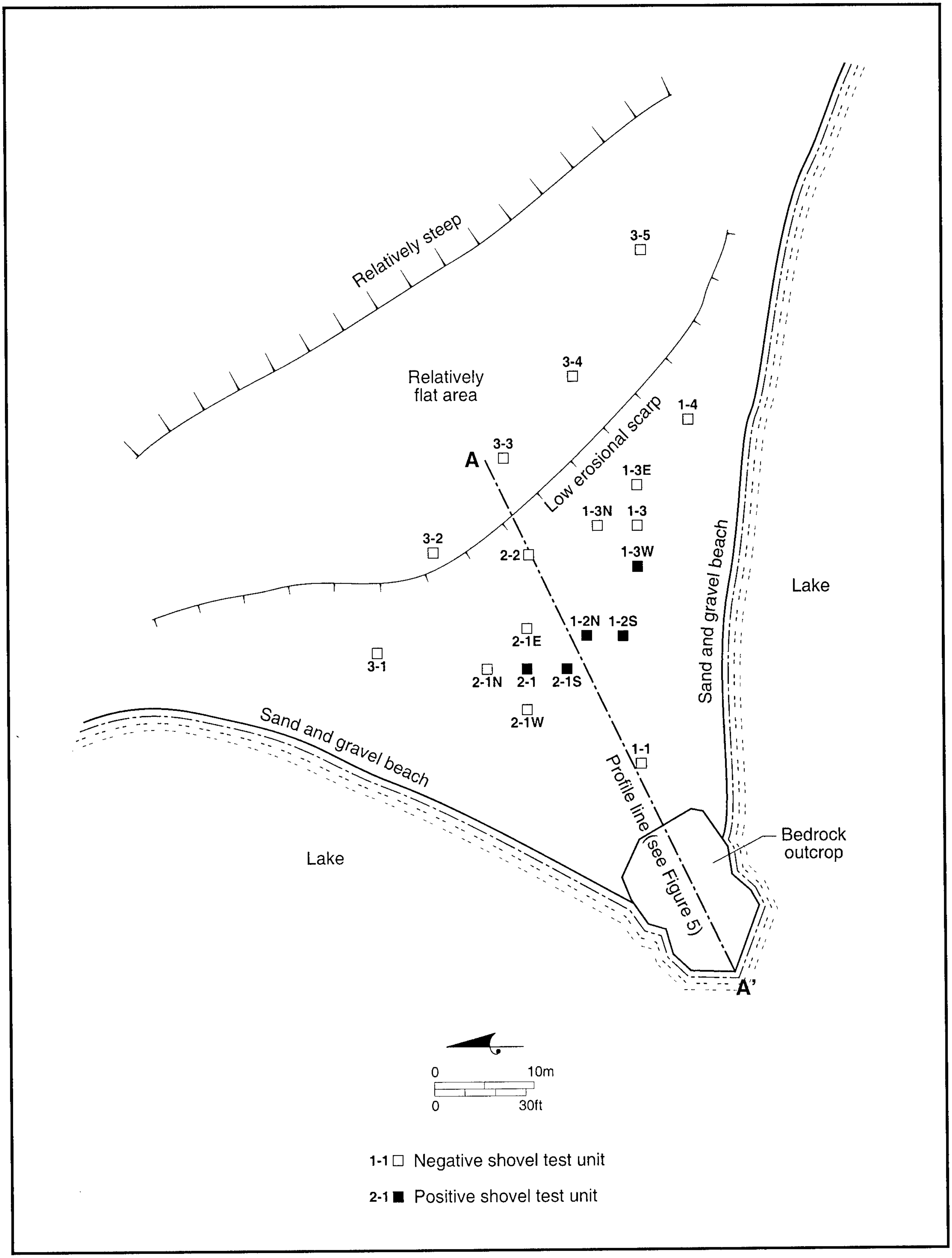


Figure 4. Sketch map of Phase I survey of Site 75.5.

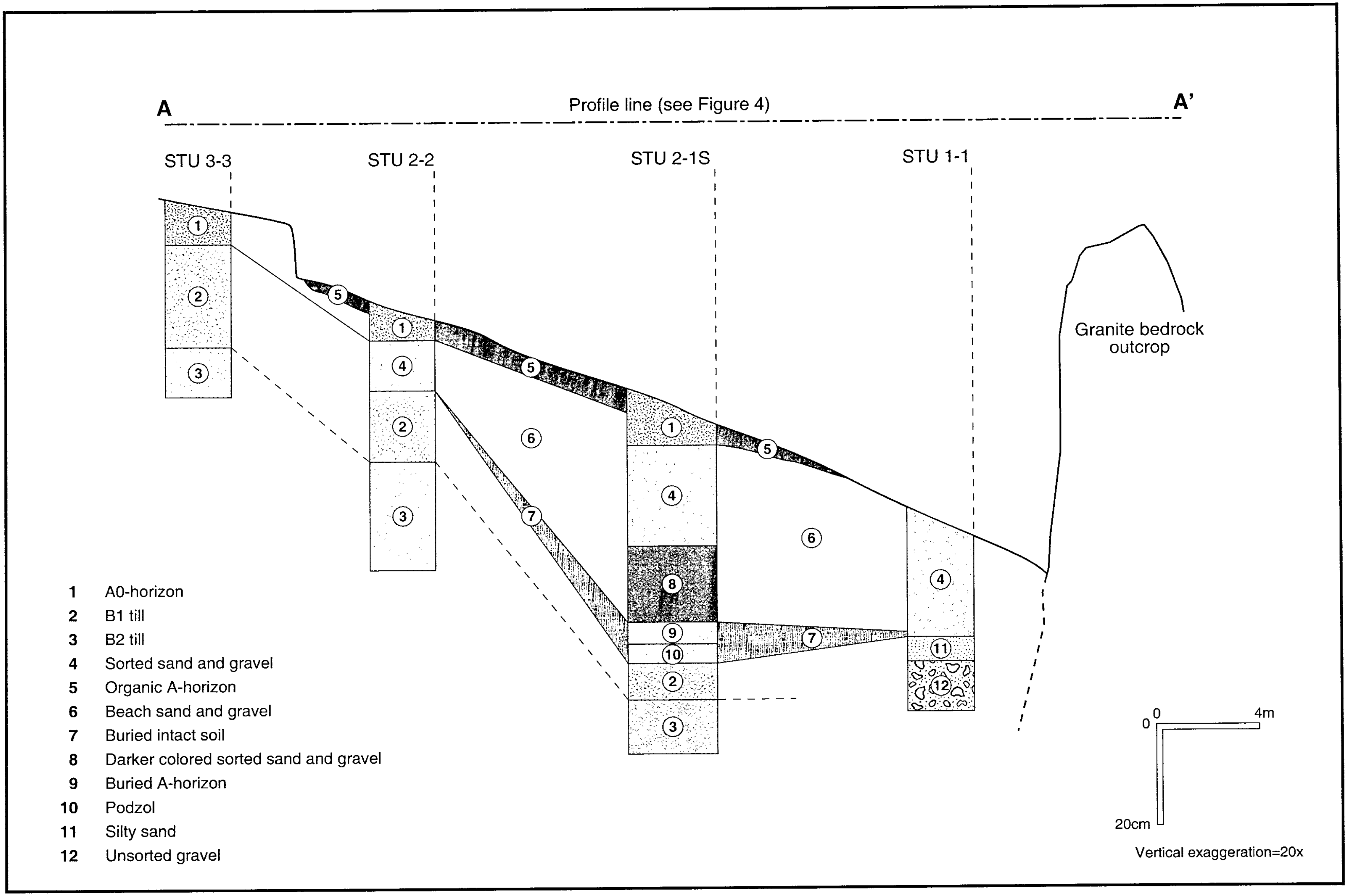


Figure 5. Composite profile of Site 75.5 based on the Phase I excavations.

Plate 1. Location of Site 75.5 on the northeastern shore of Great Pond. View to the southeast.

Table 1: Summary of Artifacts Recovered from Site 75.5 in the Phase I Survey

STU	Stratum	Depth	Artifacts
Surface	Surface	Surface	1 - rhyolite core fragment; 2 - rhyolite flakes
2-1	A soil	25-30cm	3 - quartz flakes; 1 - rhyolite flake
1-2N	Beach lag	10-20 cm	1 - rhyolite flake
1-3W	B soil	30-40 cm	1 - rhyolite flake; 1 - chert uniface
1-3E	Beach lag	10-20 cm	1 - rhyolite flake
2-1S	Beach lag	0-10 cm	1 - rhyolite flake
2-1S	Beach lag	10-20 cm	1 - rhyolite flake
2-1S	Beach lag	20-30 cm	1 - rhyolite flake
2-1S	Beach lag	30-40 cm	2 - rhyolite flakes; 1 - quartz flake
2-1S	A soil	40-50 cm	41 - FCR[1]; 2 - rhyolite unifaces; 1 chert uniface; 3 - rhyolite flakes; 1 - quartz flake
2-1S	B soil	50-60 cm	1 - FCR
		Totals	1 - core fragment; 4 - unifaces; 14 - rhyolite flakes 5 - quartz flakes; 1 - quartzite flake; 42 - FCR

Notes:
1: FCR = Fire-cracked rock

a landmark. Other large bedrock outcrops and small points are present along the shore of Great Pond to the east, but they are not accompanied by a similar beach. Likewise, the opposite shore of the lake possesses neither prominent points nor accommodating beaches.

A Phase II evaluation of Site 75.5 was recommended to more clearly establish the nature of the site occupation and the potential for intact archeological features, to obtain a larger sample of artifacts, and to determine the age of the site (Kellogg and McVarish 2000:22). The Phase II evaluation would include a detailed topographic survey of the site and excavation of 1-x-1-m test units to exposes profiles and surfaces for more detailed observation and documentation. The beach deposits overlying the intact soils on the site would be screened to recover any artifacts, but could be excavated as a single unit. The intact soils would be sampled for flotation to recover any faunal or floral remains that may be associated with the prehistoric occupation of the site. All suspected FCR would be collected for analysis of the breakage patterns that may indicate usage of the stone (see Petersen 1991:124-129 and Spiess and Hedden 2000:46-48). Charcoal collected from secure prehistoric contexts (i.e., hearth or pit features) would be identified and radiocarbon dated. The eligibility, or ineligibility, of the site for inclusion in the National Register of Historic Places will be evaluated with respect to the Maine State Plan (Spiess 1990). The Phase II evaluation was conducted in October 2000.

2.0 METHODS

2.1 Research Design

The research design for the project and scope of work (Appendix I) were aimed at evaluating Site 75.5 for eligibility to the National Register of Historic Places. The field work was designed to obtain a larger sample of artifacts for analysis of the activities and period of occupation. Dating techniques were applied to allow for placing the site in its temporal and cultural context. A major goal of the Phase II evaluation was to ascertain the integrity of the archeological deposits and determine if features were present on the site. Cultural features are more likely to yield faunal and floral data that relate to subsistence and economy. In general the approach is congruent with the human ecology, or contextual, approach of Butzer (1982) and the historical ecology of Crumley (1994). Although fundamentally materialist, the approach recognizes the socio-cultural and ideological dimensions of past human behavior, as well as alternative interpretive frameworks that are possible (e.g., Hodder 1991). More specifically, the potential significance of the site is evaluated relative to the relevant cultural context of the Maine State Plan (Spiess 1990), and National Register criteria (National Park Service 1990).

2.2 Field Investigations

Field investigations were guided by the technical proposal and research design for the project. One meter square test units were placed in a modified cross pattern with the main axis running perpendicular to the shore (Figure 6). A grid was established with the origin to the south and west of the site area. An aluminum marker stamped with the site number and date was placed on a two foot long piece of rebar adjacent to the bedrock outcrop. The datum point was designated as N10/E20 meters and an arbitrary elevation of 0.0 meters assigned. Grid North is 52° east of True North (71° east of Magnetic North). Elevations were taken across the site landform and at excavation units for the production of a detailed contour map. Phase I STUs were also mapped by transit. Thirty trees on the site landform were cored to obtain ages and the locations were also mapped by transit.

Standard excavation procedure was by shovel in 10 cm levels within natural strata. Redeposited beach sands and gravels were excavated as a units. Trowels were used to excavate the preserved A-soil horizon preserved below the beach deposits. All excavated sediments were screened through 1/4 inch hardware cloth to insure the uniform recovery of artifacts. Recent and modern cultural material was not collected. All prehistoric cultural material was collected in bags, marked by provenience, and transported to the JMA laboratory for processing and analysis. All suspected fire-cracked rock (FCR) was collected for analysis. Soil samples were collected for flotation and for oxidizable carbon ratio (OCR) dating (Douglas S. Frink, personal communication 2000). Charcoal was collected from appropriate contexts for wood identification and radiocarbon dating. Observations on the excavations were recorded on standardized forms. Floor plans and profiles were drawn and photographed to document the site stratigraphy and archeological findings. Black & white and color photographs were also taken of the site setting and excavations.

2.3 Laboratory and Artifact Analysis

Artifacts recovered in the course of the field investigations were processed in the JMA laboratory. Materials were cleaned and inventoried following guidelines established by the Maine State Museum. To the extent possible, the recovered artifacts were identified as to material, temporal or cultural/chronological association, style, and function. Lithic debitage was divided into two categories: 1) with cobble cortex; and 2) without cobble cortex. These two categories were divided into size classes within material types. Size

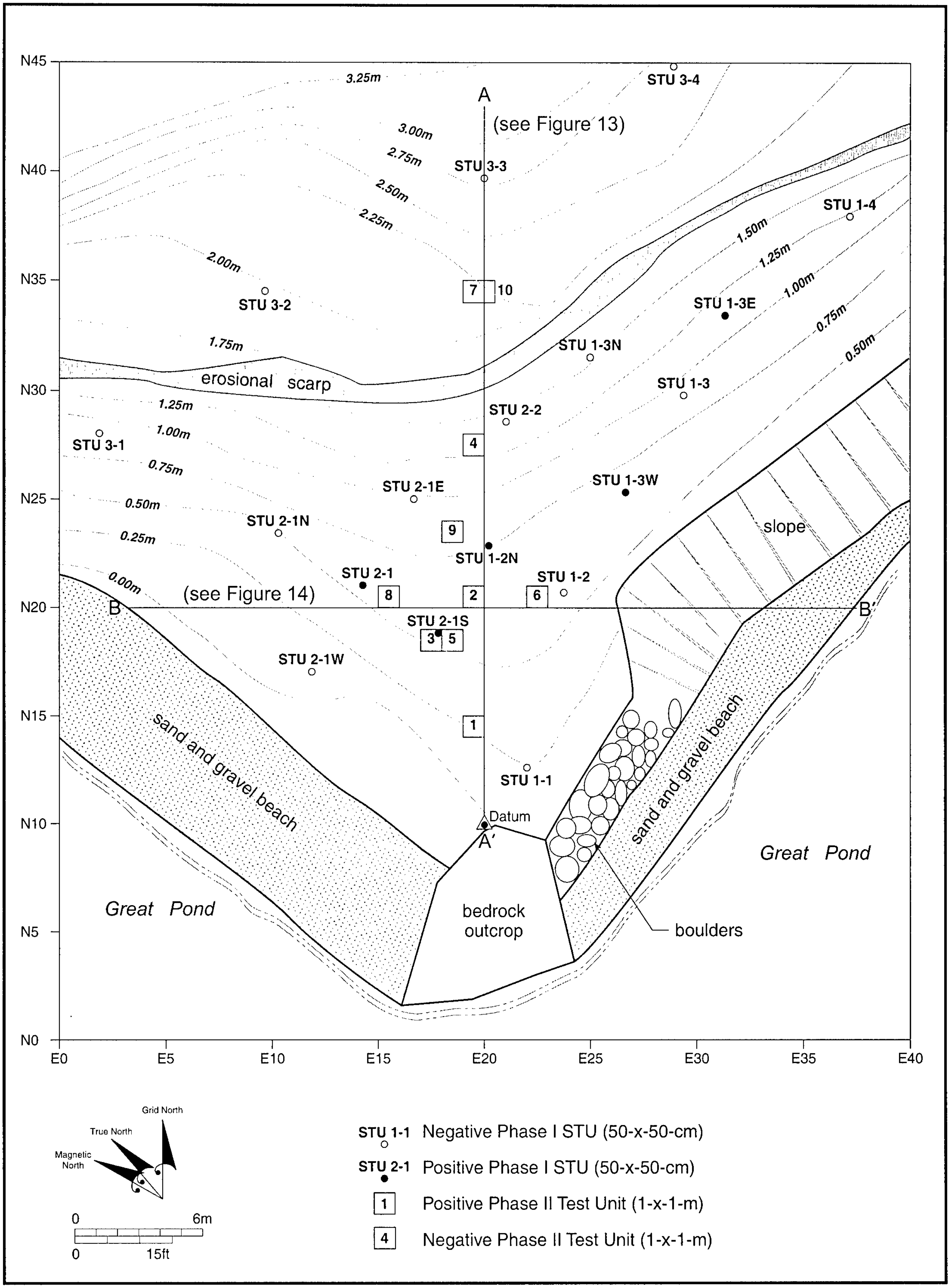


Figure 6. Phase II excavation units and contours of Site 75.5.

classes were chosen based on the work of Patterson (1990) and Shott (1994) which has shown that bifacial reduction results in a characteristic flake size distribution. All debitage flakes were examined at 10X magnification and observations were recorded on flake shape, breakage, platform shape, and other attributes, following the work of Lowery and Custer (1990), Riley et al. (1994), Cotterell and Kamminga (1987), and others. The range of colors for lithic materials were recorded based on the Rock Color Chart (Rock-Color Chart Committee 1991). Fire-cracked rock was subjected to a separate attribute analysis modeled on the work of Yoon (1986), as modified by Spiess and Hedden (1994; 2000; Arthur E. Spiess, Email communication 2000). Observations were recorded on material type, weight, size, and fracture patterns. Each piece was also examined for evidence of other uses, such as abrasion or battering. Formal artifacts and stone tool fragments were measured, weighed, and edges were examined under low-power magnification for evidence of use wear.

Soil samples collected for OCR analysis (Frink 1992, 1994) were air dried and sent to OCR Dating, Inc., Essex Junction, Vermont. Profiles and photographs of the excavations were also supplied along with summaries of the Phase I and II excavations. Samples collected for radiocarbon dating were sent to Leslie Raymer, New South Associates, Inc., for wood identification, and then forwarded to Beta Analytic, Inc. for dating. Calcined bone fragments were also sent to New South Associates, Inc. for identification.

The analyses were designed to discover any patterns in the artifact assemblages that may indicate the functional and typological nature of the assemblages and/or the site formation processes associated with their deposition. These attributes are particularly relevant for the evaluation of the site's potential archeological significance. Background and field data are evaluated, synthesized, and placed in a broader perspective based on knowledge of regional archeological resources.

3.0 RESULTS

3.1 Field Investigations

Nine 1-x-1-m test units were excavated during the Phase II evaluation of Site 75.5 (Table 2; Plates 2 and 3). Test Unit (TU) 1 was placed on the southern portion of the site northwest of STU 1-1. The ground in this area has little cover and sand and gravel are exposed on the surface. A debitage flake was recovered from the surface of the area during the Phase I survey. Test Units 2, 9, 4, and 7 were placed along the Grid North-South baseline to obtain a composite cross-section of the site stratigraphy. Test Unit 5 was placed at the location of STU 2-1S from the Phase I survey. A possible archeological feature had been encountered below the beach deposits in the STU and several unifacial stone tools were also found (Kellogg and McVarish 2000:21-22). Test Unit 5 was added adjacent to the east of TU 3 to form a 1-x-2-m unit to further explore the buried, former ground surface in this area. Test Units 6 and 8 were excavated to provide the east and west arms of the cross pattern as proposed for the Phase II evaluation. Test Unit 10 was a 1-x-0.5 m addition to TU 7 to expose a larger portion of a charcoal concentration in the area.

Test Unit 1 was excavated to a depth of 80 cm. The southwest quadrant was excavated to 110 cm depth. In general, beach-deposited sand and gravel overlay rocky glacial till at the base of the unit. Four distinct zones of beach deposits were encountered (Figure 7; Plate 4). The upper-most zone was approximately 25 cm thick and was composed of mottled fine sand and silt along with some fine–medium pebbles (±4 - 8 mm). At the base of this zone roots and other evidence of soil development (organic matter and podzolic pockets) were encountered. In Zone II cobbles were present in a loose silty sand matrix becoming uniform in color with some pockets of podzolic soils. This is interpreted as a weakly-developed B horizon associated with the overlying roots and organic matter representing an A-soil horizon. Zone III was sandier with less gravel without evidence of soil development. At the base of this zone an abrupt change to silty clay with some gravel occurs. Zone IV is alternating layers of sand and gravel ending at a cobble pavement embedded in a sand and gravel matrix. In the southwest quadrant, the cobbles were removed to insure that the base of the beach deposits had been reached. A silty clay till was exposed at the base of the excavations.

Artifacts were recovered only from Zone I of TU 1 (Table 3). One possible fragment of FCR was found at the surface of Zone II. Interpretation of this sequence is uncertain. The presence of a buried soil horizon above beach deposits without prehistoric cultural material suggests that the surface of the site in this area may have been on beach deposits. The cobbles at the base of the sand and gravel beach deposits may represent a former shore position at approximately one meter in elevation above the current lake level at some time in the past prior to the site occupation. Alternatively, the lag may date to the early postglacial period as water reworked the surface of the till as Great Pond formed. This portion of the site is probably subject to overwash during storms when strong winds blow from the northwest. When the lake was dammed the surface represented by the buried soil horizon was submerged under almost two meters of water.

In TU 2, 23 to 45 cm of beach deposits are present under a thin (2-3 cm) layer of duff–decomposing leaf and conifer needle litter (Figure 8). The beach deposits become darker colored with depth, but this may be due to increasing moisture. Underneath the gravel is an abrupt contact with a light yellowish brown (2.5Y6/3) fine sand ranging in thickness from 2 to 6 cm. A darker colored stratum (2.5Y5/3, light olive brown) is a preserved A-soil horizon with organic matter and charcoal. Below the A-soil horizon is weathered till with patches of Albic, eluviated sediments (leached, podzolic; 10YR7/1, light gray). The till matrix is sandy silt with rocks. Only one debitage flake was recovered from the beach deposits,

Table 2: Grid Coordinates of Phase II Test Units

Unit	North	East	Depth of Beach Deposits	Comment
1	14	19	>90 cm	
2	20	19	42 cm	
3	18	17	42 cm	1-x-2-m unit with Unit 5
4	27	19	10 cm	
5	18	18	45 cm	1-x-2-m unit with Unit 3
6	20	22	20 cm	
7	34	19	0 cm	Above scarp of old shore
8	20	15	35 cm	
9	23	18	20 cm	
10	34	20	0 cm	1-x-0.5-m unit expansion of Unit 7

Units were designated by the southwest corner relative to a grid established on the site. The origin of the site grid (N0/E0) is in the lake to the southwest of the site area. A datum marker was placed at Grid N10/E20 adjacent to a large bedrock outcrop (see Figure 6).

including the fine sand at the base of the sand and gravel deposit (Table 3). Three pieces of debitage were recovered from the Buried A-soil horizon (Table 3).

Test Unit 3 was placed so that Phase I STU 2-1S was incorporated in the northeast quadrant of the 1-x-1-m unit. A possible feature had been encountered at the base of the beach deposits in the STU. Beach deposits in TU3 ranged from 42 to 48 cm in thickness. Layering was apparent in the beach deposits at depth and, as in TU 3, a fine sandy silt layer is present at the base of the gravely deposits. A buried A-soil horizon was encountered in TU 3 also, but was not as clearly defined as in TU 2.

Rhyolite and quartz debitage and calcined bone were recovered throughout the beach deposits (Table 3). Artifacts were also recovered from the buried A-soil horizon, including a biface fragment on weathered Kineo-type rhyolite. The tip fragment is not diagnostic of a particular cultural or time period.

Test Unit 4 was placed within three meters of the erosional scarp that represents the high water mark of the dammed lake. Beneath the forest duff, cobbles were encountered in a loose, silty sand matrix. Pockets of beach deposits of sand and gravel were encountered in the eastern half of the unit. Pockets of an Albic soil horizon were encountered across the whole unit. Roots were abundant and a large network of horizontal roots related to a near by tree prevented limited excavations into the B-soil horizon developed on till. No artifacts were recovered.

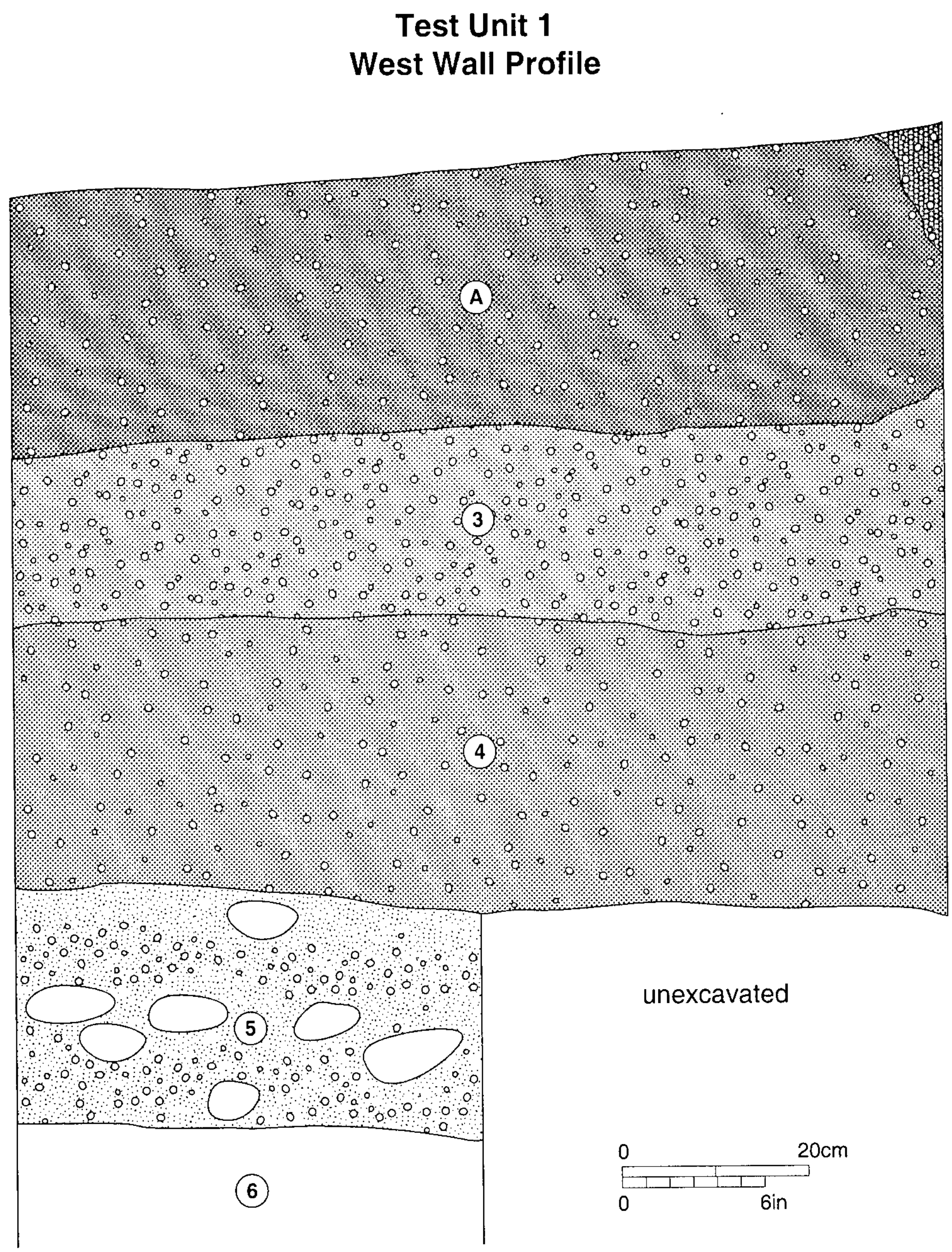
Test Unit 5 was placed adjacent to the east of TU 3 to further explore the area of the possible feature encountered in STU 2-1S. A feature was not identified in TU 3. From the profile of the east wall of TU3 it could be seen that STU 2-1S extended further to the east into the area of TU5. The stratigraphy of TU 5 was similar to TUs 2 and 3. Between 34 and 35 cm of beach deposits were encountered with a silty sand lens at the base above the buried A-soil horizon. The silty sand lens was discontinuous around rocks protruding upwards. Several large rocks and cobbles were encountered in excavating the A-soil horizon and the underlying weathered till. A number of rocks were collected as possible FCR as they exhibited irregular breaks and reddening (Plate 5). The buried A-soil horizon was much better expressed in TU5,

Table 3: Artifact Recovery from the Phase II Excavations

Unit	Level	Strat.[1]	Lot	Artifacts	Comments
1	1	I	14	10-rhyolite flakes; 1-quartz flake; 1-calcined bone fragment	Beach deposits
1	2	II	15	1-FCR	Beach deposits
2	1	I	16	1-rhyolite flake	Beach deposits
2	2	II	17	1-rhyolite flake; 1-quartz flake; 1-quartz shatter	Buried A-soil horizon
3	1	I	18	4-rhyolite flakes; 3-quartz flakes; 1-quartz shatter; 13 - cal. bone	Beach deposits
3	2	II	19	16-rhyolite flakes; 4-quartz flakes; 5-calcined bone fragments	Buried A-soil horizon
5	2	I	20	4-rhyolite flakes; 2-quartz flakes; 3-FCR; 6-calcined bone frags	Beach deposits
5	3	II	21	5-rhyolite flakes; 2-quartz flakes; 2-chert flakes; 1-quartz shatter; 25-FCR; 1-chalcedony uniface frag 2-chert uniface fragments (refit)	Buried A-soil horizon
6	1	I	22	1-quartz flake; 1-cal. bone frag	Beach deposits
7	1	I	23	61-calcined bone fragments	A-soil horizon
8	1	I	24	25-rhyolite flakes; 6-quartz flakes; 5-quartz shatter; 2-chert flakes 16-cal. bone frag; 2-quartz uniface fragments	Beach deposits
8	2	IA	25	1-rhyolite flake	Silty sand at base of beach deposits
8	3	II	26	1-rhyolite flake; 12-FCR	Buried A-soil horizon
9	1	I	27	1-rhyolite flake; 2-cal. bone frag	Beach deposits
10	1	I	28	876-calcined bone fragments	A-soil horizon
Total: Beach lag deposits				46 - rhyolite flakes; 13 - quartz flakes; 6 - quartz shatter; 4 - FCR; 39 - calcined bone fragments	
Total: Buried A-soil				23 - rhyolite flakes; 7 - quartz flakes; 2 - quartz shatter; 2 - chert flakes; 37 - FCR; 5 - calcined bone fragments; 2 - quartz uniface fragments 2 - chert uniface fragments (refit); 1 - chalcedony uniface fragment	
Total: Phase II[2]				69 - rhyolite flakes; 20 quartz flakes; 8 - quartz shatter; 41 - FCR; 44 - calcined bone fragments; 2 - chert uniface fragments (refit); 2 - quartz uniface fragments; 1 - chalcedony uniface fragment	
Total: Phase I & Phase II (see Table 1 also)				83 - rhyolite flakes; 25 - quartz flakes; 1 - quartzite flake; 9 - quartz shatter; 83 - FCR; 44 - calcined bone fragments; 9 - unifaces; 1 - core fragment	

Abbreviations: flk = flakes(s); FCR = fire-cracked rock(s); cal. = calcined; frag(s) = fragment(s); chal. = chalcedony

Notes: See Appendix II for the complete artifact inventory.
1: Str. = Stratum
2: Test Units 7 and 10 were excluded from the totals (calcined bone = 942 fragments).



A 6.5Y 4/2 very fine sand and silt with few pebbles; beach deposits

2 6.5Y 4/2 pebbles in matrix of silt to coarse sand, poorly sorted; beach deposits

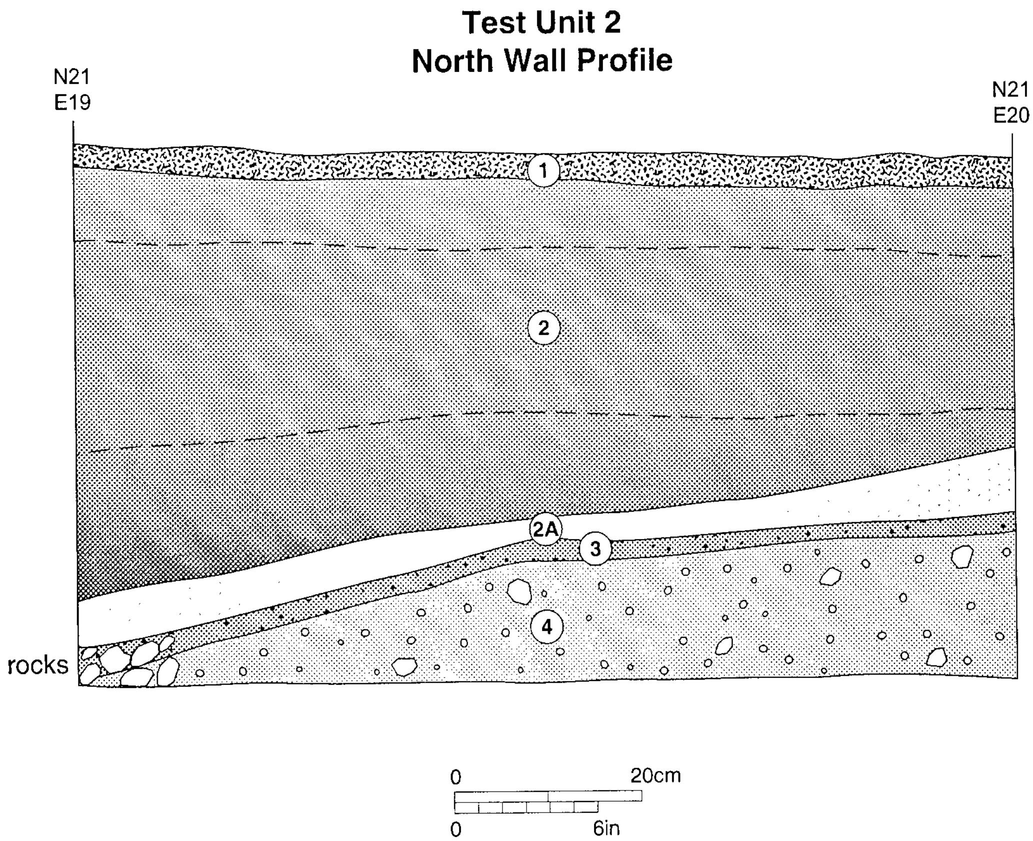
3 10YR 5/8 yellowish brown very fine sand and silt with more pebbles; beach deposits

4 2.5Y 5/4 light olive brown very fine sand and silt with fewer pebbles; beach deposits

5 Layers of gravel, coarse sand, and cobbles; beach deposits

6 Till in clayey silt matrix; C-soil horizon

Figure 7. West wall profile, Test Unit 1.



1 Leaf and conifer needle litter

2 Mottled 2.5Y 4/3 olive brown and 2.5Y 5/3 light olive brown coarse beach sand and gravel; beach deposits

2A 2.5Y 6/3 light yellowish brown fine sand; beach sand

3 2.5Y 5/3 light olive brown fine silty sand; contains dispersed black organics and charcoal; buried A-soil horizon

4 10YR 5/8 yellowish brown sandy silt with small amounts of gravel and rock; buried B-soil horizon

Figure 8. North wall profile, Test Unit 2.

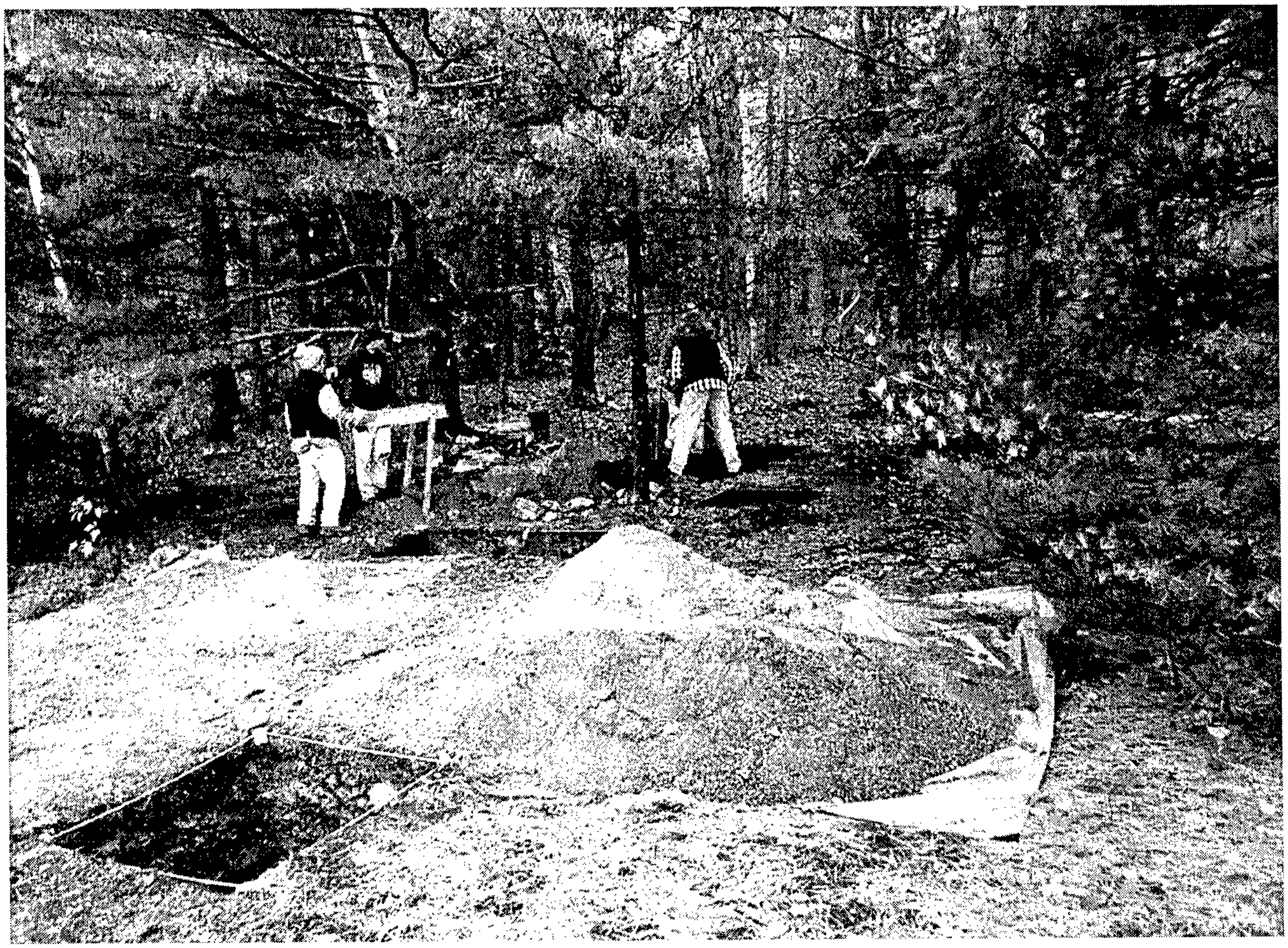


Plate 2. Phase II excavations in progress. View to the northeast.

Plate 3. Phase II excavations in progress. View to the southwest.

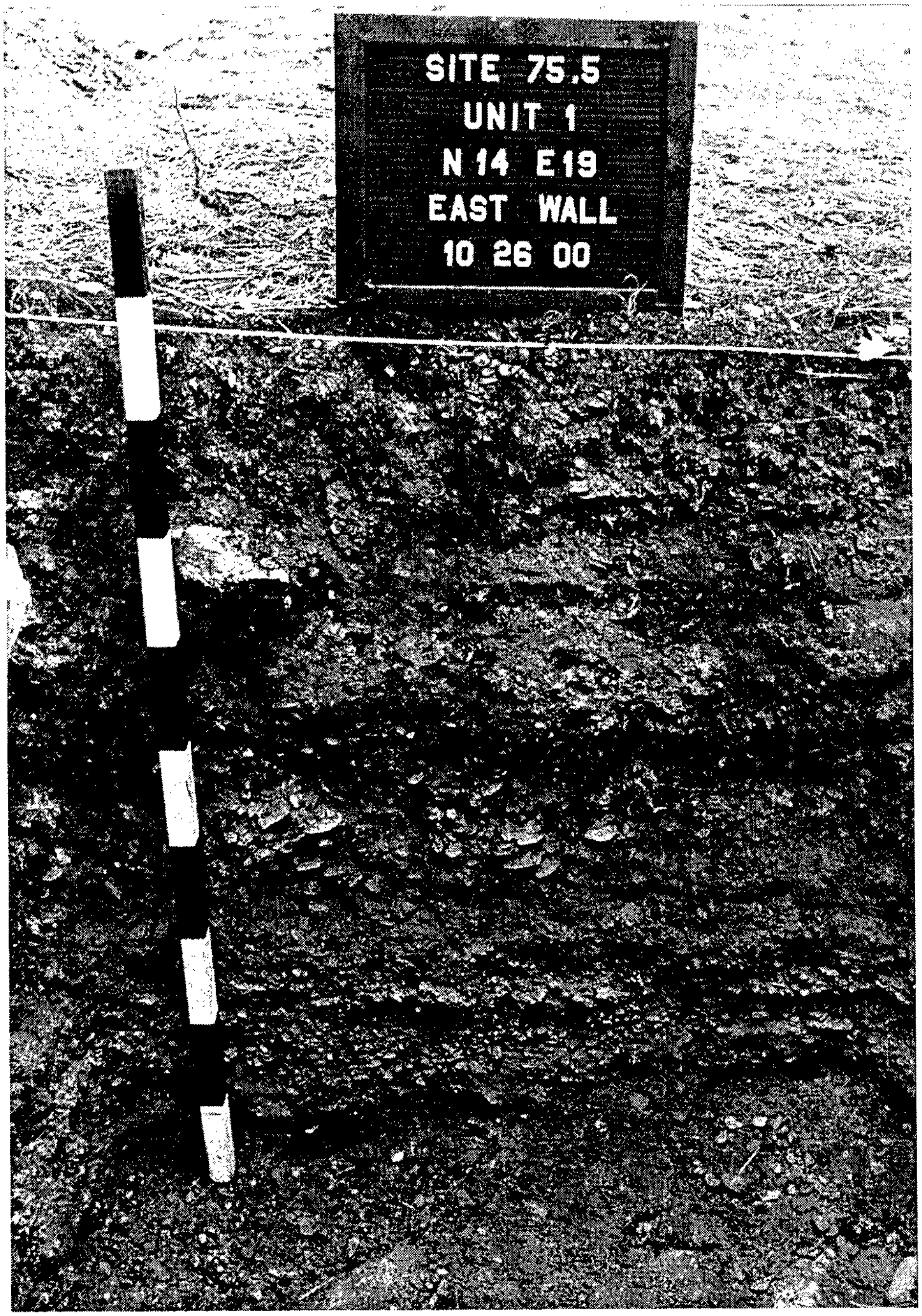


Plate 4. East wall profile, Test Unit 1.

Plate 5. Floor plan at the base of Stratum II, Test Unit 5.

than in TU 3 (see Plate 6). It appears that the charcoal and FCR encountered in STU 2-1S came from the margin of a concentration of charcoal, FCR, rocks exposed in TU 5.

The prehistoric artifacts recovered from the beach deposits in TU 5 (Table 3) came chiefly from the base of the stratum and within the silty sand lens overlying the buried A-soil horizon. Six fragments of calcined bone were recovered from the beach deposits (Table 3). Artifact recovery from the buried A-soil horizon was relatively high (Table 3). Debitage of three different materials was recovered: rhyolite, quartz, and chert, along with three chert uniface fragments.

A small fragment of a chert uniface was found, along with two fragments of a chert uniface (Table 4). The small chert uniface fragment is yellowish gray (5Y8/1) with retouch and microstep fractures along a section of one edge. The edge angle is approximately 50 degrees. Only a short one centimeter long section of the unifacial edge is present.

The second chert uniface is formed by the two fragments that refit. The chert is mottled in several colors, some grading into other shades. The predominant colors are a grayish red (10R4/2) grading to dark reddish brown (10R3/4). On the opposite side of a sharp transition, the colors grade from a pale red (5R6/2) to grayish pink (5R8/2). Retouch occurs on two edges of the rectangular piece. On one margin is microstepped to form a slightly overhanging 90 degree angle. The opposite margin also forms a 90 degree angle, but the angle is formed from a blade-like flake scar running parallel to the base of the piece. The base is flat with several blade-like flake scars running parallel to the margins. The front edge is heavily battered so that microstep fractures are present on both sides of the edge. The two fragments are refit longitudinally with a concave indentation at the front with shatter missing. The rectangular form and breakage of the piece suggests a gunflint broken during use.

The possible gunflint does not appear to be fashioned on a European chert or flint. At Pentagoet, a French colonial outpost near the mouth of the Penobscot River (Faulkner and Faulkner 1987:151-155), gunflints were fashioned on either a gray or blond flint. The gunflints were manufactured two different ways: from flakes trimmed to shape, or from long thick blades snapped into sections (Faulkner and Faulkner 1987:151-152). The piece from Site 75.5 is cannot be from snapped blade as there is a knob on the top side. Rather the piece was fashioned on a large flake or block of raw material. The material is distinctive in the collection from the site. Chert is a minor material in the assemblage and all other chert flakes are a plain grayish color. The piece is probably aboriginal, although it could have been fashioned on a local (New World) material by a European hunter or trapper. The first alternative is considered more likely as no other European materials were collected from the buried A-soil horizon on the site. The Contact period occupation implied by the find of a gunflint is supported by radiocarbon and OCR dating, as discussed below.

Test Unit 6 was excavated near Phase I STU 1-2 (Figure 6). The beach deposits in TU 6 ranged from 20 to 27 cm thick (Figure 9). Lens of sand and gravel were evident in the beach deposits. In the south west quadrant of the unit was a recent trash pit containing canned meat containers, aluminum and steel cans, glass bottles and jars, plastic dishes and utensils, and a Jiffy-Pop popcorn package. Many of these items were partially burned. Larger rocks were found at the base of the beach deposits protruding from the subsurface and in an apparent circular arrangement around the trash pit (Plate 7). A buried A-soil horizon was not encountered in TU 6, but some mottles and patches of eluviated sediments were noted extending into the B-soil horizon developed on till. Only one quartz flake and one fragment of calcined bone were recovered from the beach deposits. No prehistoric artifacts were found in an undisturbed context.

Table 4: Stone Tools from Site 75.5

Phase I Survey

Lot #	Provenience	Material	Size (mm)[1]	Weight[2]	Artifact
6	STU 1-3W	Chert	19.5-x-16.5-x-4.9	1.7	Uniface; small scraper fragment
12	STU 2-1S	Felsite	43.3-x-34.1-x-6.0	8.2	Uniface; retouched flake
12	STU 2-1S	Felsite	51.4-x-45.8-x-15.4	37.0	Uniface; large retouched flake
12	STU 2-1S	Chert	26.1-x-23.8-x-7.2	3.1	Uniface; endscraper
12	STU 2-1S	Quartz	18.7-x-7.9-x-4.4	0.6	Biface fragment; tip edge

Phase II Evaluation

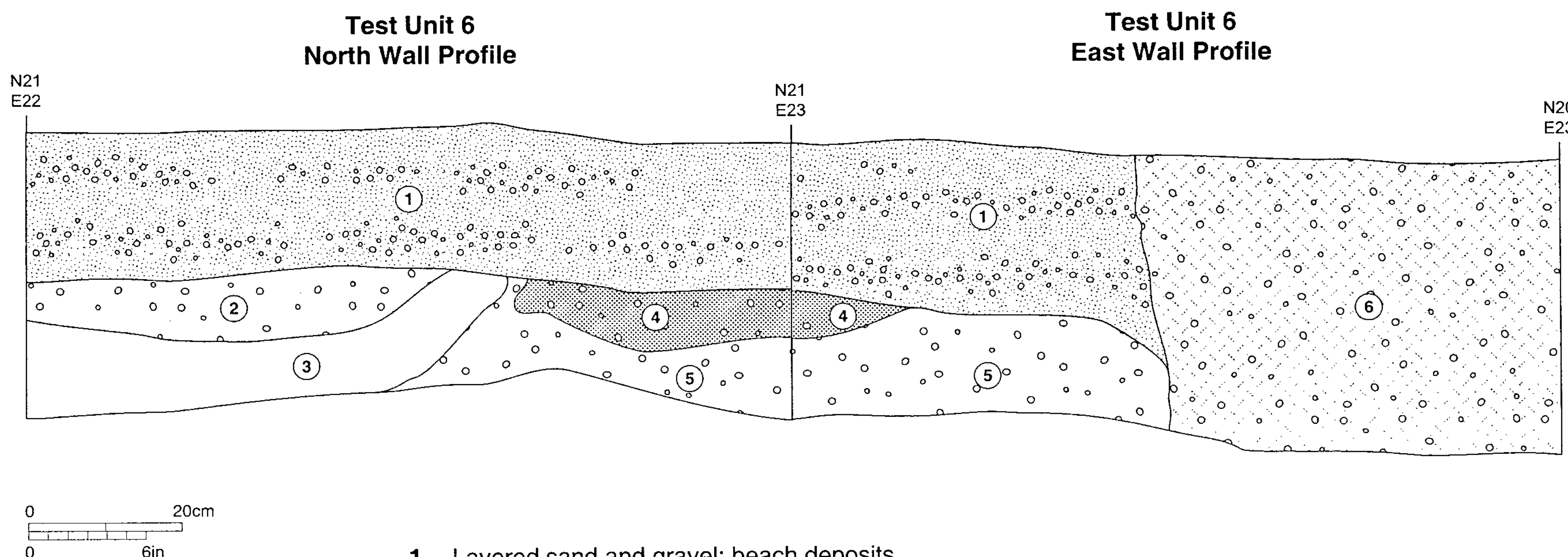
Lot #	Provenience	Material	Size (mm)	Weight	Artifact
19	TU 3; Str. II	Felsite	17.2-x-23.9-x-5.9[3]	2.2	Biface fragment; asymmetrical tip
21	TU 5; Str. II	Chert	20.2-x-15.8-x10.6	3.6	Uniface/biface; possible gunflint
21	TU 5; Str. II	Chalcedony	13.8-x-11.5-x-5.5	1.0	Uniface; small scraper fragment
24	TU 8; Str. I	Quartz	17.5-x-12.4-x-4.6	1.1	Uniface; utilized flake(?)
24	TU 8; Str. I	Quartz	20.8-x-14.5-x-6.1	1.2	Uniface; retouched/utilized flake

Notes: Str. = Stratum;
1: Size in mm Length-x-Width-x-Thickness; **2:** Weight in grams;
3: Length measured from the medial break to tip, width measured across break.

The modern trash pit probably represents a hearth partially excavated into the beach deposits. The hearth was filled with trash before the fire was extinguished, and then covered over after use. As noted earlier, several cobble fire rings are present on the surface of the site and bottles and cans are scattered on the surface. Some of the cobble fire rings contain charcoal and trash, such as aluminum foil.

Test Unit 7 was excavated above the erosional scarp of the dammed lake. No evidence of prehistoric occupation had been identified above the scarp during the Phase I survey (Kellogg and McVarish 2000:21-22). A relatively thick layer of forest duff (3-5 cm) was encountered overlying an irregular topography of rocks protruding from the underlying B-soil horizon developed on glacial till. No beach deposits were present. In the southeast corner of the unit, in and around a concentration of rocks, a dense concentration of charcoal and calcined bone was encountered. No prehistoric or historic artifacts were found in the unit, or in the charcoal and bone concentration.

Test Unit 10 was opened adjacent to the east of TU 7 as a 1-x-0.5-m extension to further investigate the charcoal and bone concentration (Figure 6; Table 2). Additional charcoal and bone was encountered in the southern portion of the unit. A large sample of the concentration was collected for flotation. Another sample was collected for OCR dating. A piece of modern bottle glass was found in the area of the concentration, but no prehistoric artifacts were found. This feature is probably modern. The glass could be incidental, but no prehistoric cultural material was found in the 1.5^2 meter excavation or in the Phase I STUs in the vicinity.



1 Layered sand and gravel; beach deposits

2 10YR 6/4 light yellowish brown coarse sand with some gravel and silt; B-soil horizon

3 5YR 7/1 light gray clayey silt or loam; B-soil horizon

4 10YR 6/6 brownish yellow silty sand with some gravel; B-soil horizon

5 10YR 5/6 yellowish brown clayey silt with some gravel; B-soil horizon

6 Disturbed historic refuse mixed with gravel and sand; trash pit

(Note: Zones 2-5 are mottles of a disturbed B-soil horizon)

Figure 9. North and east wall profiles, Test Unit 6.

Plate 6. North wall profile, Test Units 3 and 5.

Plate 7. Floor plan at the base of Stratum I, Test Unit 6.

To complete the west arm of the cross-pattern of Phase II evaluation, TU 8 was excavated (Figure 6). Beach deposits ranged from 35 to 41 cm thick (Figure 10). A thin sandy silt layer was present at the base of the beach deposits as in TUs 2, 3, and 5. Although the surface was uneven with roots extending across the unit, the sandy silt was excavated as a separate level (Stratum IA; Table 3). The sandy silt ranged in thickness from 1 to 9 cm thick. Below Stratum IA was the buried A-soil horizon. The buried A-soil horizon extended across the whole unit and was a loamy silt with charcoal. The soil ranged in thickness from 4 to 7 cm thick. The B-soil horizon was a rocky silty clay–weathered till.

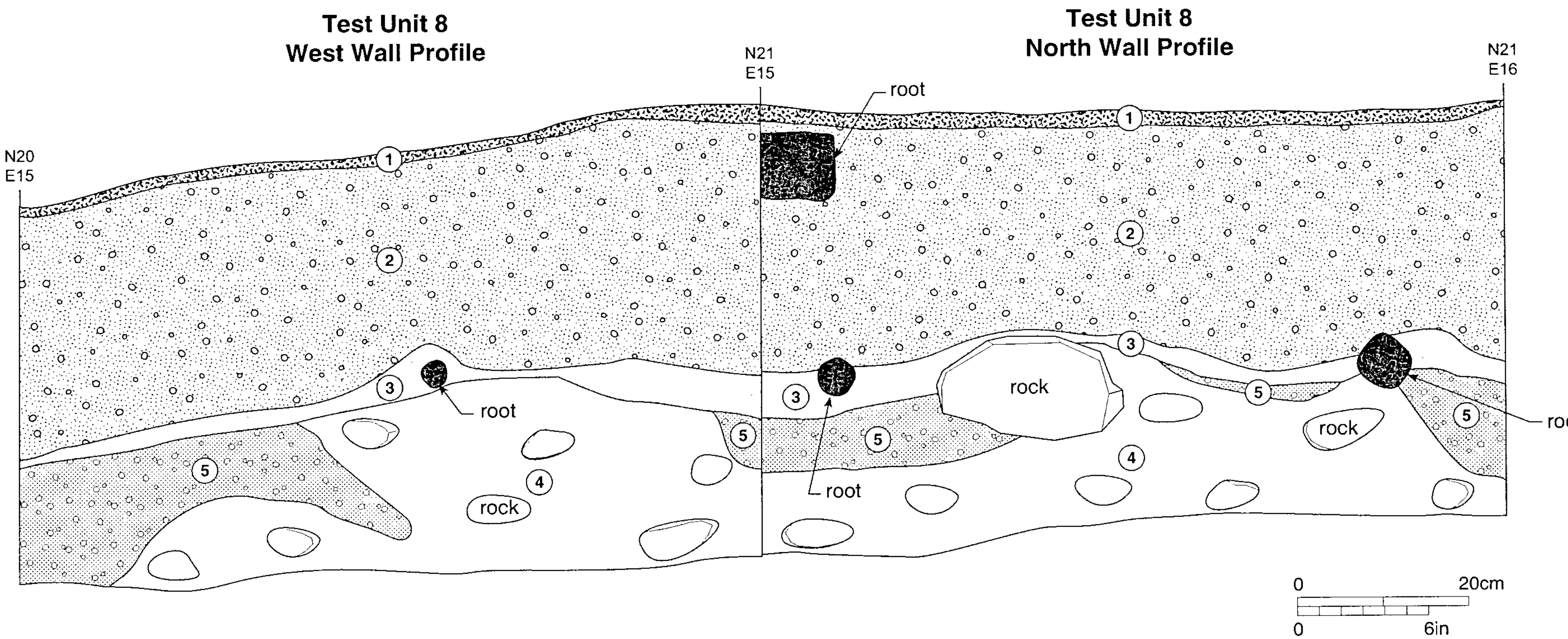
The majority of the artifacts recovered from TU 8 were found near the base of the beach deposits of Stratum I (Table 3). Thirty-eight pieces of lithic debitage were collected. Kineo-type rhyolite (felsite) dominates, while quartz is second in abundance. Chert is a minor component of the debitage assemblage for TU 8 and for the site in general. Calcined bone fragments were also present in the beach deposits of TU 8, as in other units. Two small fragments of quartz unifaces were found also (Table 4). One piece is fashioned from a milky quartz, while the other is on clear crystal quartz. Both unifaces are fragments of retouched or utilized flakes. On the milky quartz piece, microflaking is evident on two edges, each approximately one centimeter in length. One edge angle is 15 degrees, the other is steeper (approximately 75 degrees). The edges appear battered rather than retouched, so that the piece is somewhat questionable as a culturally-modified tool. The battering, or apparent use-wear, may have resulted during redeposition in the beach deposits. The crystal quartz piece appears to have a retouched edge with evidence of use-wear in addition. The edge angle is not consistent and ranges from 15 to 30 degrees. The angle is steeper at the edge where microflaking and microstep fractures are present. Both pieces are small and probably broken. One small rhyolite flake was recovered from Stratum IA. One additional rhyolite flake and 12 fragments of FCR were recovered from the buried A-horizon soil.

Test Unit 9 was placed north of TU 2 along the north-south base line of the site (Figure 6). A relatively thick organic forest duff (3-5 cm) overlay the beach deposits in TU9 (Figure 11). The beach deposits were relatively shallow ranging from 19-20 cm along the northern edge of the unit to 19-24 cm along the southern edge. Roots were common at the base of the beach deposits. A fine sandy silt overlying weathered till was found below the sandy and gravely beach deposits. A clear buried A-soil horizon was no present although some charcoal was noted at the interface between the silt and the underlying till.

Patches of eluviated soils were also present. Some of the large pieces of charcoal were only partially burned and are probably roots. Excavations extended approximately 9 cm into the till. Only one rhyolite flake and two fragments of calcined bone were recovered from the beach deposits.

3.2 Site Stratigraphy and Landform

Below the erosional scarp at the high water mark of the dammed lake, a wedge of mixed sand and gravel beach deposits cover the surface of the site landform (Figures 12 and 13). A horizontal zone less than two meters wide below the scarp lacks beach deposits or they are thin and patchy. Another zone parallel to the erosional scarp can be identified in which the original ground surface and the A-soil horizon has been eroded. Beginning approximately five meters south of the erosional scarp, the original ground surface is preserved below beach sand and gravel (Figure 12). Continuing to the south, the original ground surface is no longer preserved and the thickness of the beach gravels increases significantly by the location of TU 1. Beach deposits increase from east to west across the site (Figure 13). Thus, the original ground surface is preserved below beach deposits in an eight meter diameter area on the center of the site landform encompassing a maximum of 200 square meters (Figure 14). In several units within the core area of the preserved site, a lens of fine sandy silt was encountered overlying the buried A-soil horizon. In TU 1 a lens of silty clay was encountered deep in the beach deposits. The site landform sloped both to the south and to the west (Figures 12 and 13).



1 Leaf and conifer needle litter

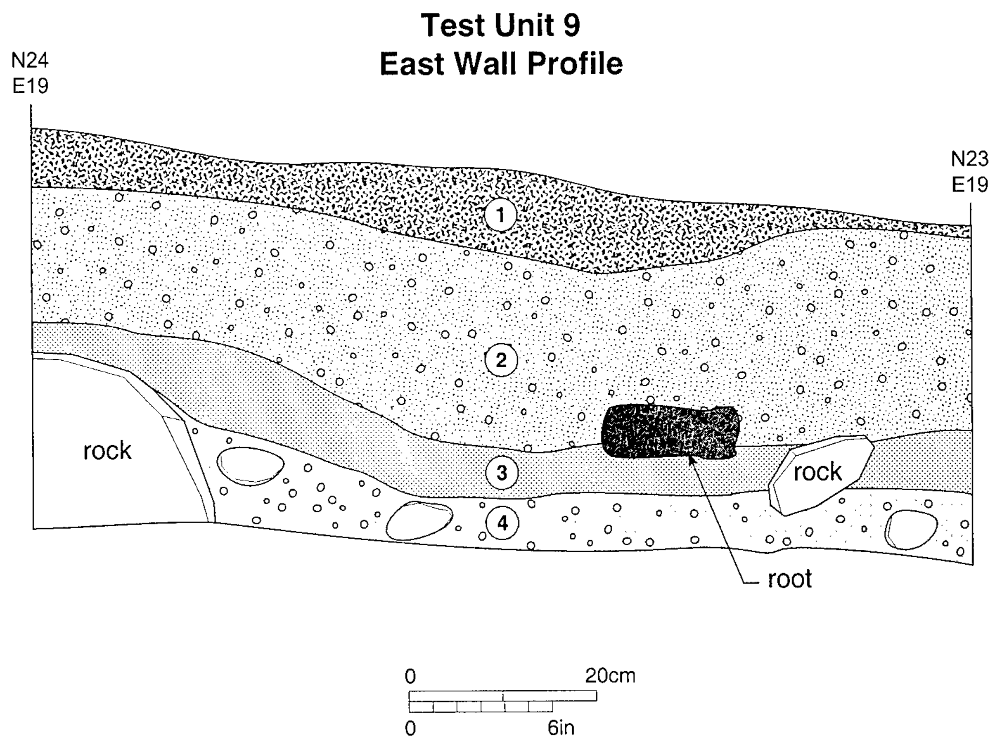
2 Sand with pebbles; beach deposits

3 2.5Y 6/1 gray loamy silt over preserved OE-soil horizon

4 2.5Y 5/6 light olive brown clayey silt with cobbles; B-soil horizon

5 10YR 8/2 very pale brownish yellow silty sand with some gravel; B-soil horizon

Figure 10. West and north wall profiles, Test Unit 8.



1 Leaf and conifer needle litter

2 Sandy with gravels and pebbles; beach deposits

3 2.5Y 6/6 olive yellow very fine sandy silt; OE-soil horizon

4 10YR 5/8 yellowish brown to 10YR 7/2 light gray compact silt matrix with poorly sorted pebbles and cobbles; B-soil horizon

Figure 11. East wall profile, Test Unit 9.

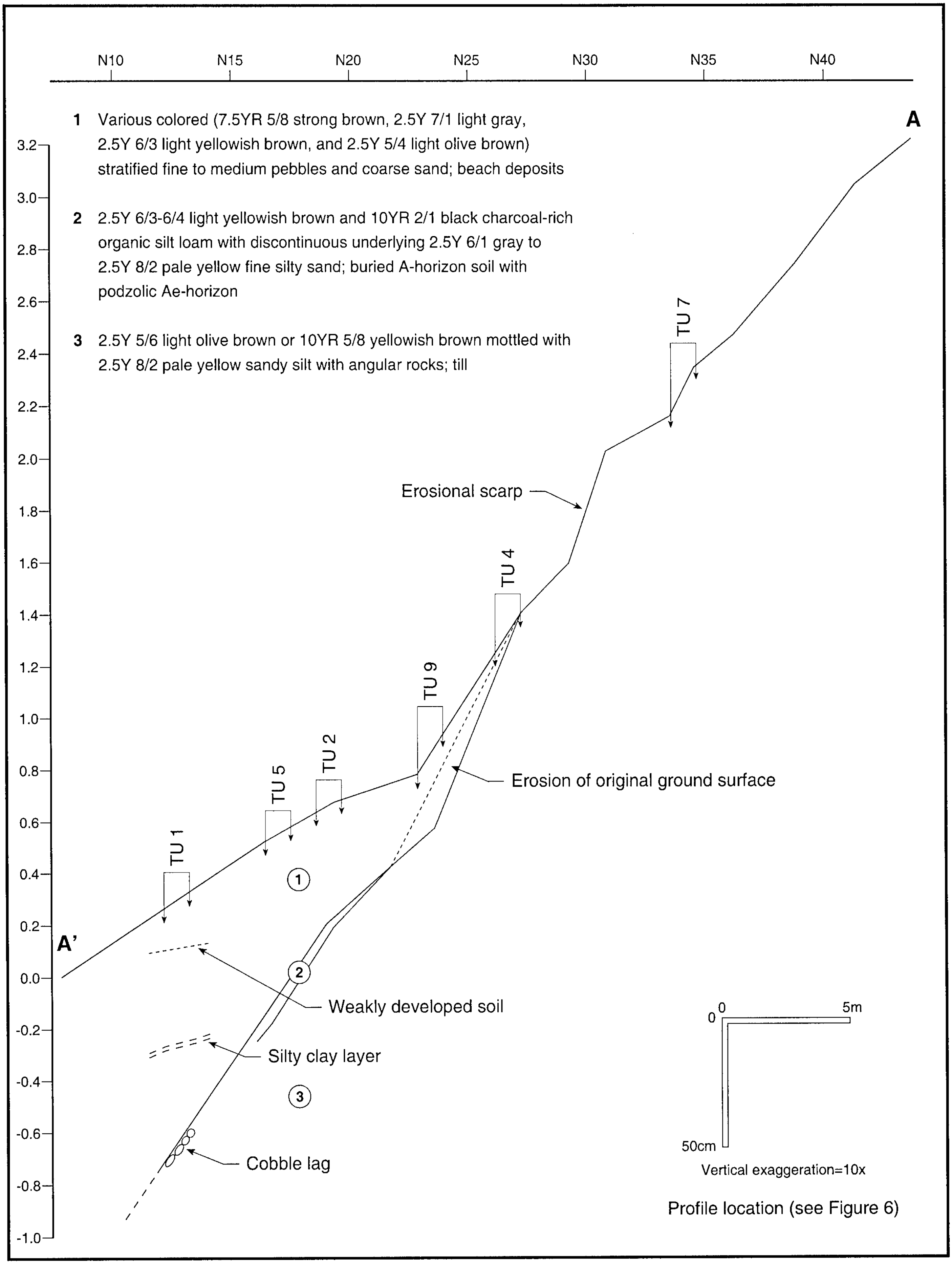


Figure 12. Elevation and stratigraphic profile along the Grid East 20 line, N10–N40.

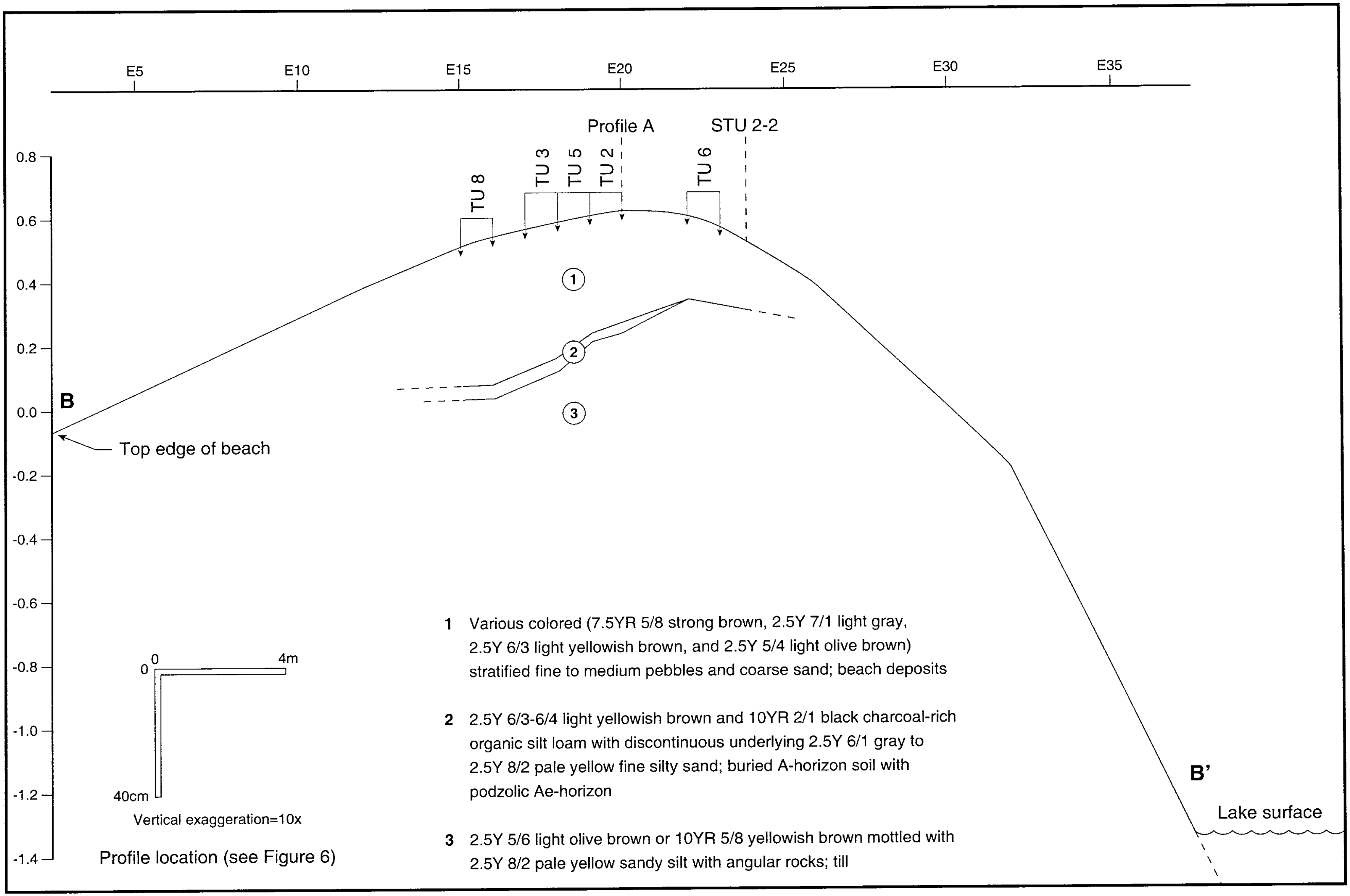


Figure 13. Elevation and stratigraphic profile along the Grid North 20 line, E5–E37.

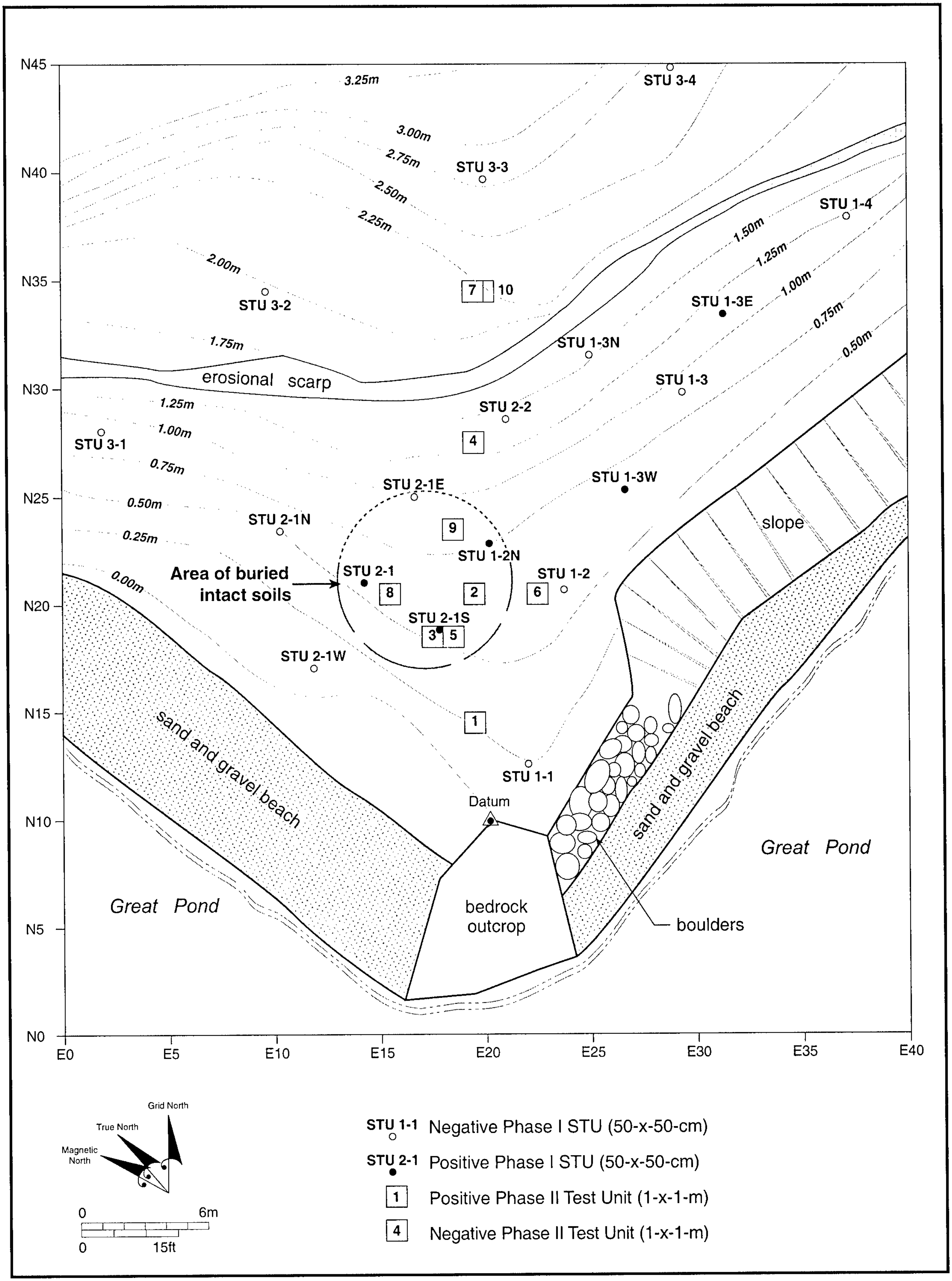


Figure 14. Area of intact archeological deposits on Site 75.5.

A model for the development of the site stratigraphy that can account for all of these characteristics includes three phases of development:

1) a dam was built across the outlet of Great Pond raising the water level approximately 10 feet;
2) erosion occurred at the shore of the lake and fine-grained sediments were deposited offshore;
3) maintenance of the dam ceased and the lake level gradually fell so that the shore zone of the lake migrated across the landform until the lake reached its current level.

The water level in the lake would have risen rapidly after the dam was built. The dam was most likely built to power a sawmill, not simply to supply a head of water for log running. The foundation of a large structure is present adjacent to the dam site. During the rapid transgression of lake level the former ground surface at the site was not significantly eroded. While the dam was maintained and the water level in the lake remained relatively constant at approximately 10 feet above the current level, an erosional scarp developed and the original ground surface was eroded across a shore zone approximately five meters wide. Fine sediments (fine sand, silt, and clay) were deposited offshore with progressively finer sediments farther offshore in deeper water. The fine silty sand layer at the base of beach gravels in TUs 2, 3, and 5 are probably near-shore lake bottom deposits. The silty clay lens in TU 1 is also probably a lake deposit. The intermediate position of the silty clay suggests that this area of the site around the bedrock outcrop was in the shore zone of the lake before the dam was built. The cobble lag at the base of excavations in TU 1 probably represents an old shore line.

After the dam went out of use and was not maintained, the water level in the lake began to fall. Sand and gravel were deposited along the shore of the site during storms, and when local wind waves affected the shore chiefly from the west. A stable surface was maintained for some time and a soil developed within the beach gravels in TU 1. Thus, the deposits overlying the site area represent a typical, coarsening upward, regressive sequence with systematic lateral variation in the fine sediments at the base of the sequence. The fine silty sand overlying the buried A-soil horizon and the silty clay lens in TU 1 probably contain diatoms that would indicate lacustrine deposition.

3.3 Tree Coring

The timing of the events discussed above was not determined during the Phase I background research. Local informants suggested that the dam was out of service sometime in the 1950s or 1960s. Differences in tree growth are evident on the site as noted earlier; therefore, a number of trees above and below the erosional scarp on the site were cored to determine their ages (Table 5; Figure 15). A mixture of tree species grow on and around the site including pines, hemlock (*Tsuga canadensis*), birches, oaks, and others. The majority of trees below the erosional scarp are red (*Pinus reinosa*) and white pine (*Pinus strobus*), while above the scarp a greater variety of trees grow. Only one oak tree was cored because the wood proved too hard. A birch tree and a cedar tree were cored but both were rotten at the center. Younger trees growing below the erosional scarp ware mostly fast-growing pines with widely-spaced growth rings that were readily counted in the field. The older trees above the scarp had more closely-spaced rings that were impossible to count due to the uneven surface left by the coring device. These were saved for counting in the lab. The cores were dried, glued in grooves cut into a board, and then sanded to allow accurate counting of the growth rings (Table 5).

The average age of trees cored below the erosional scarp is 42 years, while the average age of trees cored above the scarp is 79 years. The oldest tree cored below the erosional scarp is approximately 64 years (Tree 12; Table 5). Several other trees growing near the base of the scarp (e.g., Trees 6, 7, 8, and 10; see Figure 15 and Table 5) are approximately 50 years old. Trees farther from the scarp and closer to the current lake shore are younger averaging approximately 37 years. The youngest trees on the site are the

Table 5: Trees Cored for Ages on Site 75.5

Tree	Grid North	Grid East	Species	DBH[1]	Age[2]	Comments
1	11.6	13.6	*Pinus strobus*	23	±19	At top edge of beach on west side of site
2	10.1	21.6	*Pinus strobus*	17	±22	Below scarp of old shore; east of site datum
3	17.6	25.3	*Pinus strobus*	33	±27	Below scarp of old shore; edge of current shore
4	22.5	26.2	*Pinus resinosa*	36	40	Below scarp of old shore; edge of current shore
5	26.8	28.7	*Pinus strobus*	41	45	Below scarp of old shore
6	32.1	26.5	*Quercus spp.*	26	±50	Above scarp of old shore
7	27.6	14.4	*Pinus strobus*	33	±50	On scrap of old shore
8	23.4	14.2	*Pinus strobus*	48	<50	Below scrap of old shore
9	22.4	8.0	*Pinus strobus*	30	<45	Below scrap of old shore
10	28.3	5.0	*Pinus strobus*	41	±60	On scarp of old shore
11	40.1	12.9	*Pinus resinosa*	40	94	10 m north of scarp at old shore
12	37.7	30.8	*Pinus resinosa*	35	64	Below scarp of old shore; south of STU 3-4
13	41.5	32.4	*Pinus resinosa*	33	85	Above scarp at old shore
14	41.2	38.2	*Pinus strobus*	50	76	On top of scarp at old shore
15	35.3	37.4	*Pinus strobus*	24	39	Below scrap of old shore; near STU 1-4
16	33.5	37.6	*Pinus resinosa*	27	45	Below scrap of old shore
17	32.6	41.0	*Pinus strobus*	29	43	Below scrap of old shore
18	36.7	44.1	*Pinus strobus*	33	42	Below scrap of old shore
19	43.8	35.2	*Tsuga canadensis*	25	92	Above scarp at old shore
20	48.5	31.9	*Pinus strobus*	22	84	Above scarp at old shore
21	48.5	29.9	*Tsuga canadensis*	23	101	Above scarp at old shore
22	54.7	31.3	*Pinus resinosa*	32	90	Above scarp at old shore
23	34.2	9.3	*Tsuga canadensis*	20	85	Above scarp at old shore
24	36.7	13.2	*Tsuga canadensis*	23	82	Above scarp at old shore
25	31.8	16.6	*Pinus resinosa*	16	75	Above scarp at old shore
26	45.9	26.2	*Tsuga canadensis*	18	65	Above scarp at old shore
27	41.3	-1.5	*Tsuga canadensis*	23	74	Above scarp at old shore
28	47.5	10.4	*Tsuga canadensis*	24	78	Above scarp at old shore
29	47.6	12.4	*Tsuga canadensis*	33	86	Above scarp at old shore
30	51.4	12.5	*Tsuga canadensis*	45	69	Above scarp at old shore

Notes:
1: Diameter at breast height in centimeters; 2: Age in years; ± indicates ring counts in the field; error is probably one or two years. Grid coordinates in meters, see Figure 15

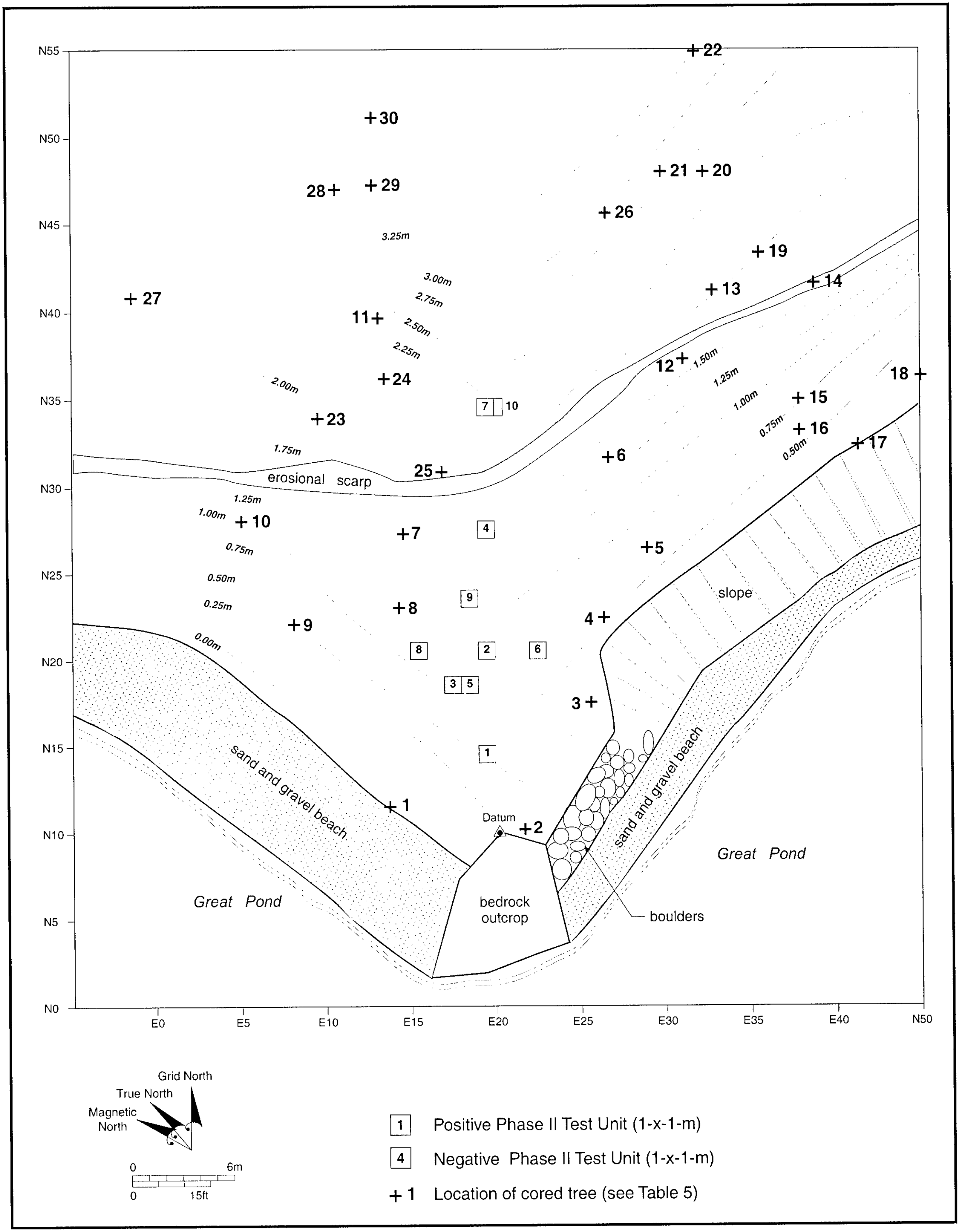


Figure 15. Locations of trees cored for ages.

close to the bedrock outcrop at the tip of the point and nearest to the modern shore (Trees 1 and 2; Figure 15; Table 5). Both trees are approximately 20 years old.

Trees above the erosional scarp are more variable in age ranging from 50 years old to over one hundred years old. The dam was probably built in the early twentieth century before 1925. Trees 14 and 25 both growing just above the erosional scarp are 75 years old (Table 5). Tree 14, a large white pine growing at the erosional scarp east of the archeological site (Figures 15 and 16), exhibits prop roots suggesting that the tree began to grow before or as the lake level was raised. Another line of evidence suggesting an early twentieth century date for the dam is the pattern of growth rings in some of the hemlock trees cored. Tree 21, the oldest tree cored, for example, exhibits a period of approximately 10 years of slow growth, then ring width increases substantially for 10 years. Relatively slow growth, indicated by narrow rings, occurred for approximately eight years, and then a period of more rapid growth occurred for approximately 30 years. Hemlock trees are very shade tolerant and will grow slowly until an opening occurs in the forest canopy. The growth rate then accelerates. When Tree 21 began growing it was over 20 meters from the lake shore. After the dam raised the lake level, the tree was only eight meters from the shore. The growth rate of Tree 21 probably increased as the tree become less shaded when trees were removed form the lake shore zone. If so, then the dam was built approximately 1910. Relatively rapid growth occurred for a period of approximately 50 years while the dam was present. After the dam was no longer maintained, trees began to regrow on the former shore zone shading Tree 21 again. Alternatively Tree 21 may have been released after logging in the early twentieth century. No stumps are present in the vicinity of the site, however.

The tree age data suggest construction of the dam sometime in the first decades of the twentieth century. This estimate is imprecise and subject to error, as other processes may account for the ages of trees above the erosional scarp. Tree growth below the erosional scarp provides more concrete evidence for the demise of the dam and falling lake levels. Trees began growing just below the erosional scarp *circa* 1940, probably while the dam was still in use. By 1950 the lake level had fallen and trees were starting to grow well below the erosional scarp. By 1960, trees had begun to grow over most of the site area. Where the gravel on the site is thickest, near the bedrock outcrop, trees began to grow *circa* 1980. This scenario is in basic agreement with the scant information provided by locals (e.g., James Dence, caretaker of the Dow Pines Recreation Area, personal communication 2000).

3.4 Oxidizable Carbon Ratio (OCR) Dating

Samples of soil were collected from the profiles exposed in the test excavations for OCR carbon dating. Oxidizable carbon ratio dating compares the total organic carbon to the percentage of readily oxidizable organic carbon (Frink 1992, 1994). OCR ratios have been calibrated against radiocarbon dated samples so that a regression formula incorporating a number of factors affecting soil development yields an absolute age for a sample (Frink 1992, 1994, 1999). OCR carbon dates are relatively inexpensive, allowing for a more thorough assessment of ages of different soils and archeological features on a site, than is possible through radiocarbon dating. Six or seven OCR carbon dates can be obtained for the price of one conventional radiocarbon date. Because of the variety of soil contexts on Site 75.5 (above the erosional scarp, below the erosional scarp, below the beach deposits, within the beach deposits), it was desirable to have as many age estimates as possible for the site Thus, OCR carbon dating was combined with radiocarbon dating (see below) to establish the timing of depositional events on the site and the age of the prehistoric site occupation (Douglas Frink, personal communication 2000). Although the OCR carbon dating method is relatively new and has been greeted with some skepticism (e.g., Killick et al. 1999; Frink 1999), the fundamental assumptions are simple and the method was expected to yield, at a minimum, relative ages for soils on Site 75.5.

Figure 16. Tree 14 on the edge of the former lake shore.

Soil samples were collected from all of the soil horizons exposed in the profiles of selected test units along the site baseline (Table 6). Ten samples had been budgeted for the Phase II evaluation of Site 75.5. However, Dr. Douglas Frink of OCR Dating, requested that all available samples be submitted. After thorough drying, all 16 samples were sent for processing. Organic mats were not processed because high concentrations of organic carbon (>30%) have been shown to introduce too much variability in the results of the chemical procedure (Douglas Frink, personal communication 2001). Given the predominance of identifiable plant tissue (leaves and twigs) and insect parts, it can be assumed that the sample is modern (within the past decade). The results are summarized below and a full discussion of the OCR methods and results is given in Appendix III. The results of the OCR carbon dating were received before the results of the radiocarbon dating on the site. The results of both dating procedures were reviewed before discussion of the OCR results with Douglas Frink during the reporting phase of the project.

The OCR carbon dates ranged from 265 to 578 years before present (yrs BP)[1] (Table 6). Paired dates on the buried A-soil and the B-soil horizon immediately below correspond well (see Samples 6 and 7, 9 and 10, and 13 and 14 in Table 6). OCR carbon dates from the beach deposits are generally younger than the dates for the buried soil horizons. The B-soil horizon in TU 7 (Sample 16; Table 6) is from the modern soil above the erosional scarp. This soil has presumably been developing for thousands of years, but a large amount of recent (or perhaps prehistoric) charcoal was included in the sample. The beach deposits in Test Unit 9 (Sample 12; Table 6) are clearly younger than the underlying buried soils. The results from TU 1 are more difficult to interpret, but clearly age increases with depth. The weakly-developed soil horizon in the upper beach deposits is approximately 200 years younger than the beach deposits at the base of the unit.

OCR carbon dates from the beach deposits are mixed samples that incorporate older material eroded from the buried soil and younger material that accumulated after the site was occupied. Thus, absolute ages cannot be expected. A young age was expected for the soils in TU 7 because they are essentially modern. The soils buried below the beach deposits were cut off from soil development processes for a period of approximately 50 years between *circa* 1910 and 1960, but they include significant amounts of charcoal from the prehistoric occupation of the site. It is possible that charcoal is present in the soils from forest fires, as well. The soils above and below the scarp should, however, contain charcoal from the same forest fires. Interpretation of the dates is not straight-forward, but the results suggest a relatively recent prehistoric occupation of the site dating between 300 and 600 yrs BP (AD 1350-1650). The dates from TU 1 suggest that the cobble lag encountered at the base of TU 1 was at the shore during prehistoric occupation of the site, as charcoal dating from the apparent time of site occupation was incorporated into the beach deposits directly above. As discussed earlier, the silty clay lens higher in the profile of TU 1 is interpreted as offshore sediments deposited in the dammed lake. The OCR carbon dates are consistent with the sedimentological and geomorphological evidence on the site. Furthermore, OCR carbon dates are corroborated by radiocarbon dating, as discussed below.

3.5 Charcoal and Radiocarbon Dating

Three charcoal samples were sent to New South Associates, Inc. (NSA), Stone Mountain, Georgia for wood identification before submission for radiocarbon dating (Appendix IV). The largest charcoal fragments were selected from a large sample of bulk soil collected from the surficial soils of Test Units 7. Calcined bone fragments were also removed from this sample (see below). The charcoal was identifiable

[1] As for radiocarbon dates, the zero year of the present is set at 1950 (Frink, personal communication 2001).

Table 6: Results of Oxidizable Carbon Ratio (OCR) Dating

JMA Sample	Test Unit	Stratum/ Level	Depth[1]	OCR[2] Number	OCR Age[3]	Context
1	1	I/1	0-3 cm	—	—	Organic mat
2	1	II/2	37-40 cm	4946	312	Buried A-soil Horizon
3	1	II/3	44-47 cm	4947	323	Possible B-soil horizon
4	1	IV/6	105-108 cm	4948	540	Beach lag deposit above till
8	2	I/1	0-3 cm	—	—	Organic mat
9	2	II/2	42-44 cm	4950	308	Buried A-soil horizon
10	2	II/3	46-48 cm	4951	324	Buried B-soil horizon
5	3	I/1	0-3 cm	—	—	Organic mat
6	3	II/2	43-47 cm	4949	310	Buried A-soil horizon
7	3	II/3	48-51 cm	4952	350	Buried B-soil horizon
15	7	I/1	0-3 cm	—	—	Organic mat
16	7	II/2	5-8 cm	4953	265	B-soil horizon
11	9	I/1	0-3 cm	—	—	Organic mat
12	9	I/2	5-8 cm	4954	268	Beach lag deposit
13	9	II/3	34-38 cm	4955	516	Buried A-soil horizon
14	9	II/4	40-43 cm	4956	578	Buried B-soil horizon

Notes:
1: Depth of sediment sample below the ground surface. **2:** OCR = OCR, Inc. lab number. **3:** OCR date in calendar years before 1950. Samples from the Organic mat were not processed for OCR dates because the high percentages of unburned organic mater leads to spurious results (Frink, personal communication 2001). The errors on the OCR dates are approximately 3%. Thus, an OCR age of 310 yrs BP has an error of 9 years (e.g., 310±9). See Appendix III for the OCR, Inc. reports.

as pine or conifer (Appendix IV). A partially carbonized fragment was removed from Lot 21 before submission to Beta Analytic. Carbonized seeds of *Rubus* sp. (blackberry/raspberry) were identified in the Lot 23 sample from TU 7. The Lot 23 sample from TU 7 was thought to be modern, but verification was sought through radiocarbon dating, as well as OCR carbon dating.

Two of the three samples yielded enough carbon to allow for conventional radiocarbon dating (Table 7; Appendix V). The Lot 23 sample was found to contain a significant percentage of uncarbonized wood, thus insufficient carbon remained after pre-treatment to allow for conventional radiocarbon dating (Beta Analytical, Inc., Email communication 2001). The remainder of the material from Lot 23 was sent to NSA to see if additional charcoal could be submitted, but it was found that the remainder of the sample was only partially carbonized as well (Leslie Raymer, NSA, personal communication 2001). Further processing of the Lot 23 sample for radiocarbon dating was suspended.

The radiocarbon ages provided by the remaining two samples date the buried A-soil horizon underlying the beach deposits, and lake bottom sediments in TUs 5 and 8. The age of the sample from the charcoal and FCR concentration in TU 5 is very young, 330 yrs BP. The radiocarbon age of the sample intercepts

Table 7: Radiocarbon Dates for Site 75.5

Sample[1]	Provenience	Age[2]	Intercepts[3]	Age Range, 1 σ[4]	Age Range, 2 σ[5]
B-151774 (Lot 21)	TU 5, Level 2, Stratum II[6]	330±60	AD 1520, 1580, 1630	AD 1470–1650	AD1440–1660
B-151776 (Lot 26)	TU 8, Level 2, Stratum II	670±70?	AD 1300	AD 1280–1320 AD 1340–1390	AD 1240–1420

Notes:
1: Lab number (Beta Analytical Inc.); B = Beta.
2: Conventional radiocarbon age before AD 1950; see Appendix V for laboratory reports.
3: Calendar age intercepts with the radiocarbon calibration curve; see Appendix V.
4: Calibrated age range at one standard deviation (68% probability).
5: Calibrated age range at two standard deviations (95% probability).
6: Both samples were from the buried A-soil horizon below beach deposits.
A third sample, from TU 7, Level 1 (Lot 23), was submitted for radiocarbon dating. The sample was found to contain partially burned material. Not enough carbon remained after pre-treatment to allow for conventional radiocarbon dating. Further analysis was canceled as the sample is considered modern. See discussion in the text.

the calibration curve at three points (Table 7). At two sigma (95% probability) the calendar age of the sample is AD 1440-1660. This result can be considered as late Ceramic and Early Contact period (Spiess 1991a, 1991b, 1995). Significantly, a possible broken gunflint was recovered from the same context. This result corroborates the OCR carbon dates from TU 3 directly adjacent to TU 5 (Table 6). The agreement between the radiocarbon dates and the OCR carbon dates is remarkable.

The second radiocarbon date from the buried A-soil horizon in TU 8 is almost twice as old as the sample from TU 5 (Table 7). The conventional age of 670 yrs BP intercepts the calibration curve at AD 1300 (650 calendar years before 1950). At two sigma, calibrated age range for the sample is AD 1240-1420. The two radiocarbon ages do not overlap, but a gap of only 20 calendar years is present.

The prehistoric occupation of site 75.5 dates to the Ceramic and Early Contact periods. A date of 670 yrs BP corresponds to the latter part of Petersen and Sanger's (1991) Ceramic Period (CP) 5 (*circa* 950-650 yrs BP) and the age range for the site includes CP 6 and 7 (*circa* 650-200 yrs BP). Shell-tempered ceramics came into use during CP 5 and continued into CP 6 (Petersen and Sanger 1991:34-53). Ceramic Period 7 coincides with the Contact period and aboriginal ceramics may have fallen into disuse (Petersen and Sanger 1991:53-56). The lack of diagnostic prehistoric artifacts is not problematic for a such a small site. The find of a probable gunflint associated with a Contact period radiocarbon date places the site in a clear cultural context, and sequential use of the site for several hundred years before the Contact period would not be unexpected.

3.6 Artifact Analysis

The majority of the prehistoric cultural material recovered in the excavations on Site 75.5 is lithic debitage–waste material from stone tool manufacture. The majority of the 105 flakes were relatively small–66.7% measure smaller than 15 mm in greatest dimension (Table 8; Appendix VI). Both flake size

Table 8: Flakes Size Distributions

Size Class	Buried A Soil	Beach Deposits	Subtotals	Percent
1 (<10mm)	10 (30.3)	21 (29.2)	31	29.5
2 (10-15mm)	15 (45.5)	24 (33.3)	39	37.1
3 (15-20mm)	4 (12.1)	12 (16.7)	16	15.2
4 (20-25mm)	2 (6.1)	9 (12.5)	11	10.5
5 (25-30mm)	0 (0.0)	5 (6.9)	5	4.8
7 (30-35mm)	2 (6.1)	0 (0.0)	2	1.9
8 (35-40mm)	0 (0.0)	1 (1.4)	1	1.0
Totals	**33**	**72**	**105**	**100.0**
Percent	**31.4**	**68.6**	**100.0**	

Weight Class	Count	Percent
<0.5g	58	55.2
0.5-1.0	23	21.9
1.1-1.5	8	7.6
1.6-2.0	5	4.8
2.1-2.5	1	1.0
2.6-10.0	8	7.6
>10.0	2	1.9
	105	**100.0**

Kruskal-Wallis One-Way Analysis of Variance
Dependent variable is Flake Size Class; Grouping variable is Deposit.

Ho: There is no difference in the sizes of flakes in the two deposits.
Ha: The flake size distributions are different for the two deposits.

Group	Count	Rank Sum
A	33	1630.00
B	72	3935.00

Mann-Whitney U test statistic = 1069.00
Probability is 0.39
Chi-square approximation = 0.73 with 1 degree of freedom.
Cannot reject Ho.

Size Class	Rhyolite	Quartz	Chert	Other	Total	Percent	Cumulative Percent
1 (<10mm)	22	8	1	0	**31**	**29.5**	**29.5**
2 (10-15mm)	31	5	2	1	**39**	**37.1**	**66.7**
3 (15-20mm)	12	4	0	0	**16**	**15.2**	**81.9**
4 (20-25mm)	10	0	1	0	**11**	**10.5**	**92.4**
5 (25-30mm)	5	0	0	0	**5**	**4.8**	**97.1**
7 (30-35mm)	2	0	0	0	**2**	**1.9**	**99.0**
8 (35-40mm)	1	0	0	0	**1**	**1.0**	**100.0**
Total	**83**	**17**	**4**	**1**	**105**	**100.0**	
Percent	**79.0**	**16.2**	**3.8**	**1.0**	**100.0**		

See Appendix VI for complete results of the Flake Attribute analysis.

Table 9: Comparison of Flake Breakage by Deposit

Flake Type	Buried A Soil	Percent	Beach Deposits	Percent	Totals
Complete	17	51.5	39	54.2	**56**
Distal	6	18.2	12	16.7	**18**
Longitudinal	1	3.0	8	11.1	**9**
Mid-section	2	6.1	0	0.0	**2**
Proximal	7	21.2	13	18.1	**20**
All Broken	16	48.5	33	45.8	**49**
Totals	**33**	**31.4**	**72**	**68.6**	**105**

Chi-square Test
Ho: The distribution of complete and broken flakes are the same for the two deposits.
Ha: The distribution of complete and broken flakes are different for the two deposits.

Expected value for the Buried A soil = 16.5; expected value for the Beach Deposits = 36.
χ^2 value = 0.803; $\alpha_{0.95}$ = 3.84 with 1 degree of freedom. 0.83 < 3.84; therefore, cannot reject Ho.

and weight distributions suggest biface manufacture or tool maintenance. Both percussive and pressure flaking are indicated by triangular/flat and round platforms on the flakes (Appendix VI). A few large flakes suggest also that cores were reduced. One core fragment were recovered from the site.

A relatively high percentage of the flakes are broken. There is no difference between the size distributions of flakes from the beach deposits and from the buried A-soil horizon (Table 8). Likewise, flake weights do not differ between the deposits (Appendix VI). Breakage patterns are also the same for the two deposits (Table 9). Although more broken flakes might be expected in the beach deposits, the ratio of complete to broken flakes in both deposits is close to 50:50.

The dominant lithic material is Kineo-type rhyolite or felsite. Most of the flakes are weathered dusky yellow green (5GY5/2) to white (N9). A few flakes of non-Kineo rhyolite are in the assemblage. These are darker colored and less greenish–light gray (N6), with yellowish gray (5Y8/1) weathered inclusions of various sizes and shapes. The second most common material is quartz. Most of the quartz is milky, but a few flakes are finer and at least partially clear. Cherts are a minor component of the flake assemblage, but several unifaces are chert (see below). A few flakes of translucent, very light gray (N7) stone were classified as chalcedony. No cobble cortex is present on any of the debitage. The core fragments and FCR include cobble cortex remnants suggesting that Kineo-type rhyolite was available in the till. Quartz was probably also available locally from cobble or bedrock sources. The cherts and chalcedony may be considered "exotic."

Only a small number of artifacts was recovered from Site 75.5 (Table 4, Figure 17). The only clearly diagnostic artifact is the probable gunflint noted previously. Two bifacial tool fragments (tips) were recovered, but neither is diagnostic. Likewise, the unifacial tools are not distinctive. The small size of the unifacial scrapers recovered from the site are consistent with a late Ceramic period occupation of the site. At least two, and possibly three, of the material types may be considered exotic. One complete scraper

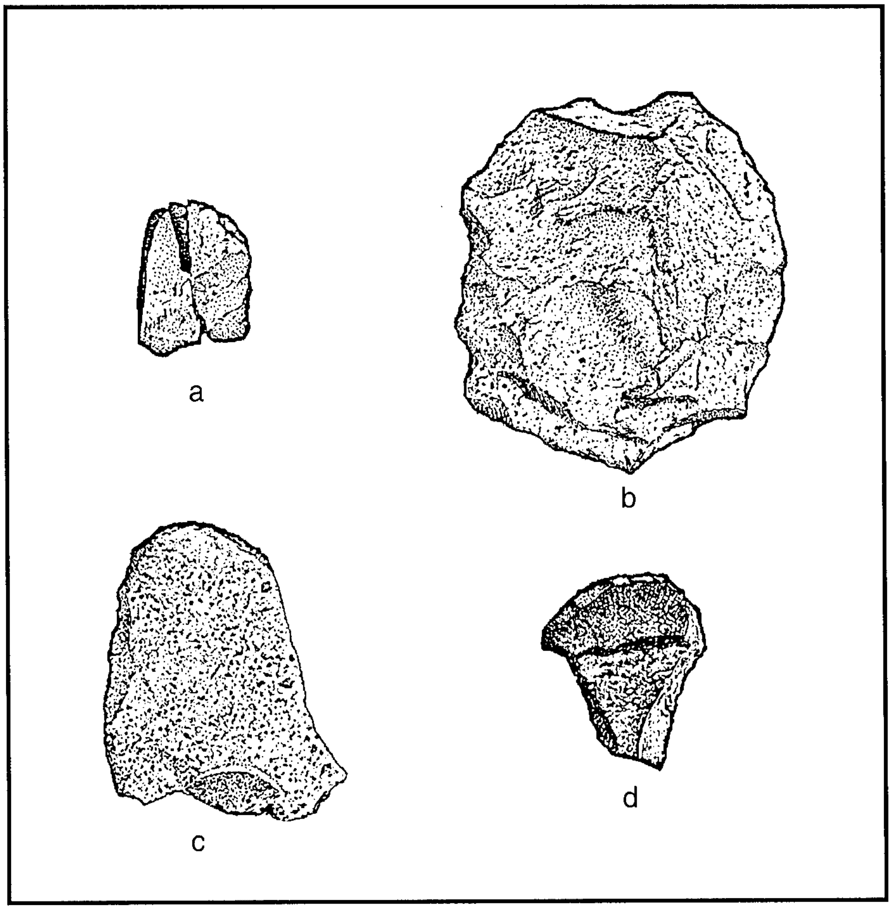


Figure 17. Selected lithic artifacts: a. probable gunflint; b-d. unifaces.

(Lot 12) is fashioned on grayish black chert (N2). The probable gunflint (Lot 21), as noted earlier, was made from a colorful chert. The yellowish gray chert (Lot 6) uniface fragment may also be an "exotic" material.

The small sizes of the unifaces and of the complete chert endscraper (Lot 12; 3.1 g) are characteristic of Ceramic period assemblages in Maine (Cox 2000:3; Sanger 1980:19; 1987:42, 120; Sanger, Email communication 2001). Also notable is the variety of materials used for unifacial tools, including apparent non-local materials (Spiess 1991a:6). The artifact assemblage, although small and not clearly diagnostic, is consistent with the radiocarbon and OCR dating of the site.

3.7 Fire-Cracked Rock

All FCR, or suspected FCR, encountered in the Phase II excavations was collected for analysis. FCR was also collected from STU 2-1S (Tables 1 and 3). All FCR was included in an attribute analysis following the methods of Yoon (1986) as modified by Spiess (Spiess and Hedden 1994, 2000; personal communication 2000). The FCR assemblage included four different types of rock (Table 10; Appendix VII). FCR from burned cobbles of Kineo-type felsite make up the majority of the assemblage with granite the next most common material. The granite category includes a variety of materials. The quartz FCR is coarse-grained. The size of FCR fragments ranged from 12 to 95 mm in maximum dimension, averaging 45.3 mm. Fragments of granite tended to be slightly smaller than the felsite fragments. Cobble cortex was present on 37.7 percent of all of the FCR. Both the felsite and granite FCR resulted from burned cobbles. Cobble cortex was lacking on a higher percentage of the quartz FCR (Table 11). The FCR was most likely derived from locally available cobbles of dense stone. Only one fragment of sandstone FCR was identified. No facets, grooves, battering, or other evidence of use was present on the FCR.

Numerous mends were identified among the FCR fragments indicating that it probably burned in place. The felsite and granite FCR are generally not crenellated (Fracture types 1, 3, or 5) and were probably used around an open fire. Crenellations, that can result from rapid cooling as in stone boiling and steam production, are more common on the quartz FCR (Table 11). The quartz FCR is from the same general context as the felsite and granite FCR. Twelve fragments of FCR came from TU 8 and one from TU 1, while the remainder (n=48) came from STU 2-1S and TU 5. None of the FCR came from formed hearths; rather the stones were concentrated on the old ground surface. Charcoal was common in and around the rocks. Specialized activities–stone boiling or steam production–are not suggested by the FCR assemblage. Some of the FCR may have resulted from fires built over stones in place, but the relatively dense concentration in TU 5 suggests a fire contained by cobbles gathered from the lake shore. An unformed, or dismantled, hearth feature was probably present in TU 5. STU 2-1S encountered an activity area on the margin of the hearth and the activity area and hearth both extend to the north beyond the excavations in TU 3 and 5. The Kineo-type felsite cobbles were apparently not burned to improve the flaking characteristics for the material as no evidence of flaking is present on the FCR.

3.8 Calcined Bone

Calcined bone was recovered from both the beach deposits and the buried A-soil horizon during the Phase II evaluation of Site 75.5 (Table 12). The majority of the bone was actually recovered from the beach deposits. The preservation of calcined bone within the beach deposits, along with the lack of difference in flake breakage between the beach deposits and the buried A-soil horizon, suggest that beach formation was relatively low energy and/or sporadic. Most of the bone is unidentifiable or unidentified mammal. Only five calcined bone fragments came from the buried A-soil horizon in the core are of the site. The vast majority of the bone came from a concentration of charcoal and calcined bone just under the forest duff in TU 7 and 10. Most of the bone from this area is probably deer. The charcoal was only

Table 10: Fire-Cracked Rock (FCR) Materials and Size Distribution

Size Class[1]	Materials				
	Felsite[2]	Granite	Quartz	Sandstone	Totals
<20	0	0	2	0	**2**
20-30	2	3	3	0	**8**
30-40	6	11	2	0	**19**
40-50	4	3	3	0	**10**
50-60	6	3	2	1	**12**
60-70	1	1	0	0	**2**
70-80	1	0	3	0	**4**
80-90	3	0	0	0	**3**
90-100	1	0	0	0	**1**
Totals	**24**	**21**	**15**	**1**	**61**

Notes: Size classes were selected based on the range of maximum dimensions in the assemblage.
1: Size range in millimeters. **2:** Felsite = Kineo-type rhyolite.

FCR Statistics	Weight[3]	Maximum Dimension[4]
Minimum	1.70	12.00
Maximum	379.20	95.00
Mean	44.14	45.25
Median	22.10	42.00
Standard Deviation	59.72	17.77
Phase I Total	**475.70**	
Phase II Total	**2217.10**	
Grand Total	**2692.80**	

3: Weight in grams; **4:** Maximum dimension in millimeters
See Appendix VII for complete results of the FCR Attribute analysis.

partially burned and not enough carbon remained after pre-treatment. The bone from this context is considered modern. One fragment of beaver bone was identified from the beach deposits in TU 8. Fragments of calcined beaver and deer bone are often the only identifiable faunal remains on interior prehistoric sites in Maine. Because there is a deposit of apparently modern or recent calcined bone on the site, and there are also modern campfire rings, the bone recovered from the beach deposits cannot be unequivocally assigned to the prehistoric component. It is likely that some of the bone was eroded from prehistoric contexts and incorporated into the beach deposits as debitage was found with the bone as well.

Table 11: Fire-Cracked Rock (FCR) Attributes

	Materials				
Cortex[1]	**Felsite**	**Granite**	**Quartz**	**Sandstone**	**Totals**
Absent	11	13	11	0	**35**
Present	11	8	4	0	**23**
Indeterminate	2	0	0	1	**3**
Totals	**24**	**21**	**15**	**1**	**61**

1: Cobble cortex.

Fracture Type[2]	Materials				
	Felsite	**Granite**	**Quartz**	**Sandstone**	**Totals**
0	1	0	0	0	**1**
2a	1	1	2	0	**4**
4	21	18	0	1	**40**
5	1	2	13	0	**16**
Totals	**24**	**21**	**15**	**1**	**61**

2: Fracture types as defined by Yoon (1986) modified by Spiess and Hedden (1994, 2000).

0: Unbroken, but reddening, or associated with FCR.
2a: Pot lid fragment.
4: Classic FCR–angular, chunky, or flat burnt rocks.
5: Classic FCR with crenellations.

See Appendix VII for complete results of the FCR Attribute analysis.

3.9 Discussion

Site 75.5 is a small, late Ceramic and Contact period archeological site situated on a point of land along the north shore of Great Pond. The point is marked by a prominent bedrock outcrop. At present an arcurate sand and gravel beach extends along the west side of the point with overwash and ice-push ridges to the north. To the east of the bedrock outcrop, the shore is rockier, with a narrower and more linear beach. The site was partially eroded when the lake was dammed, probably for a sawmill, in the early twentieth century. A portion of the site was preserved under sand and gravel as the lake level fell after the dam was no longer maintained. By 1960, the lake level had fallen to its present level and the dam no longer controls the lake level. The high water mark of the former dammed lake level is marked by a low erosional scarp. Trees north of the scrap are up to 100 years old while those below the scarp range from 65 years old just below the scarp to 20 years old on the tip of the point.

At the time that the site was occupied, the lake level was near its current level and beach deposits overlay a cobble lag north of the bedrock outcrop. The outcrop would have been a more prominent landmark along the lake shore at the time. Prehistoric occupation may have extended onto the beach deposits behind (north) of the rock. The ground was relatively flat behind the outcrop, but sloped to the west.

Table 12: Faunal Remains from the Phase II Evaluation of Site 75.5

Unit	Level	Stratum	Count	Taxa	Comments
1	1	I	1	Unidentifiable bone	Beach lag deposit
3	1	I	3	Unidentifiable bone	Beach lag deposit
3	1	I	10	Unidentifiable mammal	Beach lag deposit
3	2	II	1	Unidentifiable bone	Buried A-soil horizon
3	2	II	4	Unidentifiable mammal	Buried A-soil horizon
5	2	I	6	Unidentifiable bone	Beach lag deposit
6	1	I	1	Unidentifiable bone	Beach lag deposit
7	2	I	250	Unidentifiable bone	A-soil horizon
7	2	I	83	Unidentifiable mammal	A-soil horizon
7	2	I	31	Unidentified large mammal	A-soil horizon
7	2	I	1	Deer[1]; proximal ulna fragment	A-soil horizon
8	1	I	12	Unidentifiable mammal	Beach lag deposit
8	1	I	2	Unidentifiable small mammal	Beach lag deposit
8	1	I	1	Beaver[2]; proximal ulna fragment	Beach lag deposit
9	1	I	2	Unidentifiable bone	Beach lag deposit
10	1	I	769	Unidentifiable bone	A-soil horizon
10	1	I	79	Unidentified large mammal	A-soil horizon
10	1	I	1	Deer[1]; distal femur fragment	A-soil horizon

Notes: See Appendix IV for a full report on the faunal remains. The calcined bone from Test Units 7 and 10 may be modern.
1: Possible deer–*Odocoileus virginianus.*
2: Possible beaver–*Castor canadensis.*

Erosion occurred at the shore of the dammed lake and silt and clay were deposited over intact soils on a portion of the site. As the lake level fell after abandonment of the dam, artifacts and calcined bone fragments were incorporated into the beach deposits that accumulated over the central portion of the site.

Activities on the site included stone tool manufacture and maintenance, food preparation, and probably hide processing. The majority of the burned bone fragments are probably from deer and beaver, although the majority was unidentifiable. A dense concentration of burned bone and charcoal found above the erosional scarp cannot be clearly attributed to the Native American occupation of the site because a fragment of glass was also found, and the majority of the charcoal was only partially burned. An OCR carbon date of 265 yrs BP (A.D. 1685) is younger than the majority of the other dates from the site. The charcoal and bone were found in the forest duff layer above the dated soil horizon. No prehistoric artifacts were found above the erosional scarp elsewhere on the site.

The charcoal in the A-soil horizon preserved below beach deposits in the core area of the site dates to between A.D. 1240 and 1660. Lithic debitage, stone tools, FCR, and calcined bone are present in the buried A-soil horizon. Thus, the occupation of the site occurred in the late Ceramic and Contact periods. A possible gunflint is present in the assemblage and the scraper and uniface fragments also suggest a late Ceramic period occupation of the site. The OCR carbon dates are consistent with the radiocarbon dates from the site and help to clarify the stratigraphy of the site.

The partial preservation of the site on a formerly dammed lake is not unprecedented (e.g., Norman 1998). Generally it is assumed that lake level fluctuations due to damming destroys surface sites in the zone between the natural (modern/historic, undammed) level and the high water mark. Numerous sites have been located around Maine's lakes by surface inspection of this zone during low water levels. It is also known that lake level fluctuated over time in accordance with climate changes (e.g., Almquist-Jacobson and Sanger 1995; Petersen et al. 1994). Site 75.5 provides a case study of how sites may be partially preserved under conditions of fluctuating water levels. Rapid rise is probably the chief factor contributing to site preservation potential. Depth and hence slope are also factors. The deeper the site is inundated the more likely it would be preserved. Site on steeper slopes or backed by steep slopes are also more likely to be preserved. A broad flat would either be rapidly eroded as the shore migrated with rising water levels, or would be preserved intact as the shore zone moved across, depending on the wave climate and ultimate water depth over the site. The rate of recession of a lake level may not be as critical to site preservation as the rate of transgression. The models of Kraft et al. (1983) and Belknap and Kraft (1981), developed for coastal environments, are relevant to Maine's lake shores. The size of a lake is also relevant because the shores of larger lakes with longer fetches will be affected by larger waves. On the other hand, smaller lakes may be more heavily affected by ice push as was observed on nearby King Pond during the Phase I survey of Dow Pines Recreation Area (Kellogg and McVarish 2000: 19, 23-24).

Site preservation below the level of former dams would be possible on medium-sized lakes, or along relatively protected shores of larger lakes, if the dam was maintained for a time and then fell into disrepair or was taken out. If the lake was dammed multiple times, so that water levels fluctuated over the site, the preservation potential decreases. Likewise, if the water level over the site was shallow relative to the wave size, then preservation potential is decreased. Wave sizes can be estimated for a locality based on the fetch across open water and expected wind speed (e.g., U.S. Army Coastal Engineering Research Center 1977). Theoretically, a site preservation model could be developed for lake shores based on fetch and slope.

Site preservation along former shores of lowered lake levels during drier intervals in the past might be less likely because rapid inundation is less likely. The coastal models suggest that sites would be preserved along old, inundated shores only in low energy localities (Kraft et al. 1983). It is therefore unlikely that intact archeological deposits will be directly associated with drowned shorelines identified through seismic profiling (e.g., Petersen et al. 1994). However, areas of higher site preservation potential may be predicted in lower energy settings at the same elevation around the lake based on paleogeographic reconstructions and fetch and slope analysis, as discussed above.

Site settlement models for Maine's lakes are not as well-developed as for the coast (e.g.; Kellogg 1994). Inlets and outlets are obvious settings for occupation for water-based travel (Sanger 1979:86; Kellogg and McVarish 2000:17). Points of land and southeastern exposures also attracted prehistoric occupation (Kopec 1985:9-11; Hamilton et al. 1984:27; Kellogg and McVarish 2000:18). Site 75.5 is situated on a small point of land anchored by a large bedrock outcrop. A beach suitable for landing small boats is present to both sides of the outcrop. In addition the site faces south. In preparation of Figure 3–a shaded relief model of the local topography–it was noted that the site location is brightly lit from due south compared with almost every other locality on the shores of Great Pond. Using a computer program to estimate the sun angle at the winter solstice, when daylight is at a minimum, the shaded relief map was regenerated (Figure 18). The unique position of Site 75.5 on the shores of Great Pond is even more pronounced when the sun angle is lower. Site 75.5 receives more sunlight, at any time of year, than any

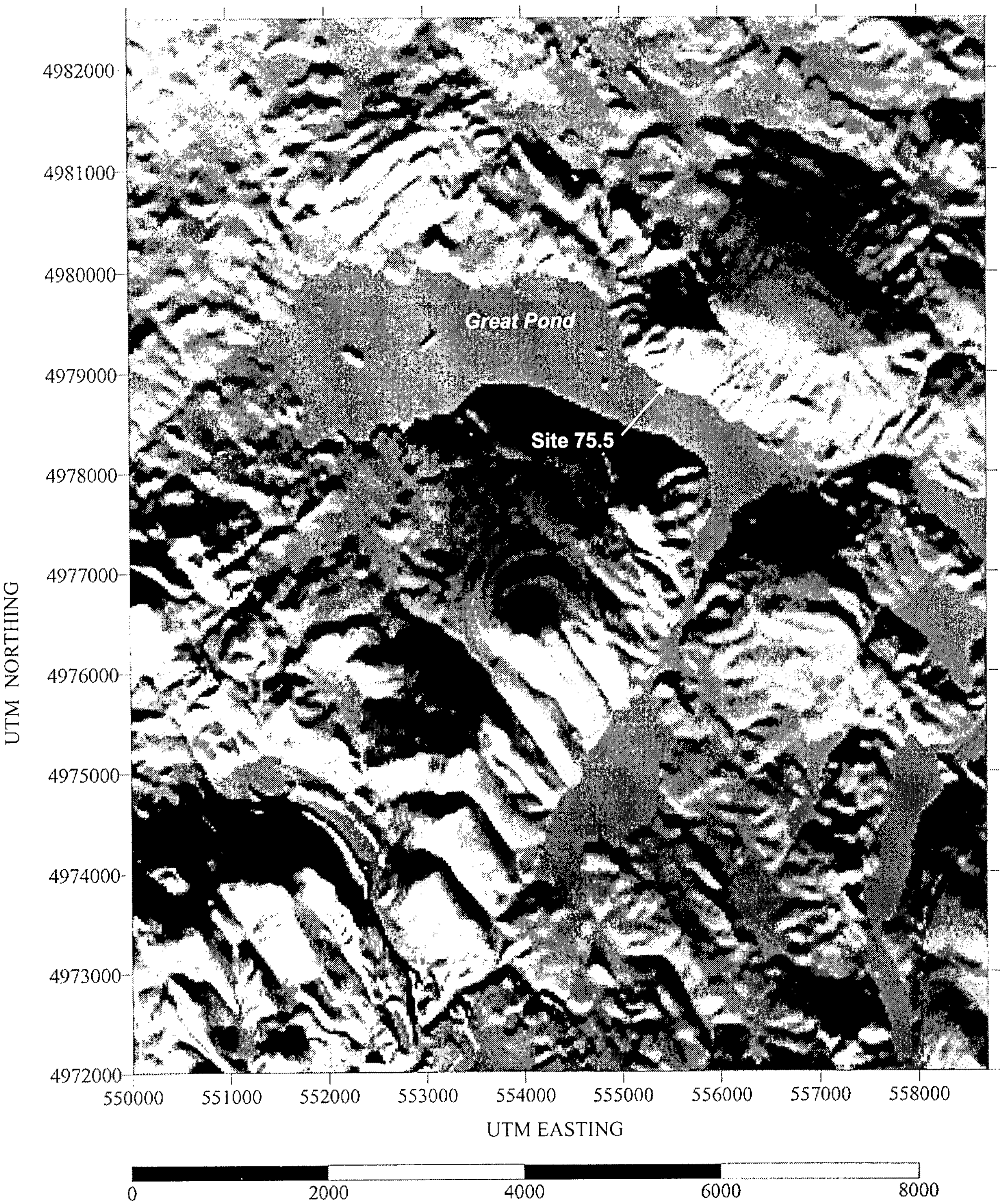


Figure 18. Shaded relief map with the sun angle set at 21°elevation simulating noon on the winter solstice (based on Dec. 21, 2000). Note that the area of Site 75.5 is the brightest location on Great Pond.

other location on Great Pond. This is true at present and hundreds of years ago[2]. Prediction of site locations along lake shores in Maine might be improved by using shaded relief models in conjunction with other data. Southern or southeastern aspects that are shaded by surrounding topography may be less likely to attract occupation or settlement than well lit localities. Shaded relief models are a standard feature of many Geographic Information Systems (GIS) software packages. Digital elevation models (DEMs) are available from commercial sources or by File Transfer Protocol (FTP) over the Internet[3] so that a shaded relief image can be easily and inexpensively generated.

3.10 Cultural Context and Assessment of Site Significance

The Early Contact period in Maine (circa 1500–1676; Spiess 1995) is fairly well documented (e.g., Bourque 1989; Bourque and Whitehead 1985; Grumet 1990:126; Prins and Bourque 1987). Although there may have been some earlier direct interactions between Native Americans and Europeans, Verrazzano's voyage in 1524 is the first that is clearly documented (Bourque and Whitehead 1985:329-330). Subsequently, additional European explorers visited the coast of Maine throughout the sixteenth century. *Circa* 1600, four groups inhabited the coast along the Gulf of Maine (Bourque 1989:262):

1) Souriquois;
2) Etchemin;
3) Almouchiquios; and
4) Abenaki.

The Souriquois (called the Tarrentines by the English), who inhabited the Gaspe and St. Lawrence River, were encountered sailing a Basque-type vessel by Gosnold in 1602 (Bourque and Whitehead 1985:332-333). The Etchemin, occupying the territory between the St. John River in New Brunswick and the Kennebec River in Maine–the area referred to by the French as Norumbega (Figure 19), were also using European sailing vessels in 1609 (Bourque 1989:258; Bourque and Whitehead 1985:334). Bourque and Whitehead (1985) argued that Souriquois and Etchemin traders acted as middlemen between European traders and fishermen visiting the banks off Labrador during the fifteenth and sixteenth centuries. Thus, Native Americans in Maine had some access to European goods before the arrival of Europeans themselves. Souriquois and Etchemin traders ranged as far south as Massachusetts trading with the Almouchiquios and the Abenaki south and west along the coast for furs (Bourque and Whitehead 1985). Thus, the fur trade was well established in the region during the sixteenth century.

The arrival of the French in Norumbega at the beginning of the seventeenth century gradually diminished the influence of the Native American traders. The French described the Etchemin as hunter-gatherers, while groups farther west grew corn and other crops (Bourque 1989:258). The first mention of firearms in the hands of Native Americans in the Gulf of Maine region is in 1606 when the French loaned weapons to the Souriquois for a revenge raid on the Almouchiquois at Saco (Bourque and Whitehead 1985:334). The French dominated the eastern Gulf of Maine region until 1613. Two decades of strife followed including war and disease, such as the pandemic of 1617-1618 (Bourque and Whitehead 1985; Bourque 1989). Bashabes, an Etchemin "superchief", was killed by the Souriquois *circa* 1615, and political control in the region was contested until *circa* 1650 (Bourque 1989:263); however, the Etchemins are referred to throughout the seventeenth century (Bourque 1989:264). There is little

[2] Ephemeris data (the positions of celestial objects relative to a location on the earth) can be calculated by commercial computer programs, or using the ephemeris calculator at http://ssd.jpl.nasa.gov/cgi-bin/eph (Solar System Dynamics Group, Jet Propulsion Laboratory, National Aeronautics and Space Administration).
[3] DEMs corresponding to USGS 7.5-minute quadrangles are available by FTP from the USGS at: ttp://edcwww.cr.usgs.gov/glis/hyper/guide/1_dgr_demfig/index1m.html.

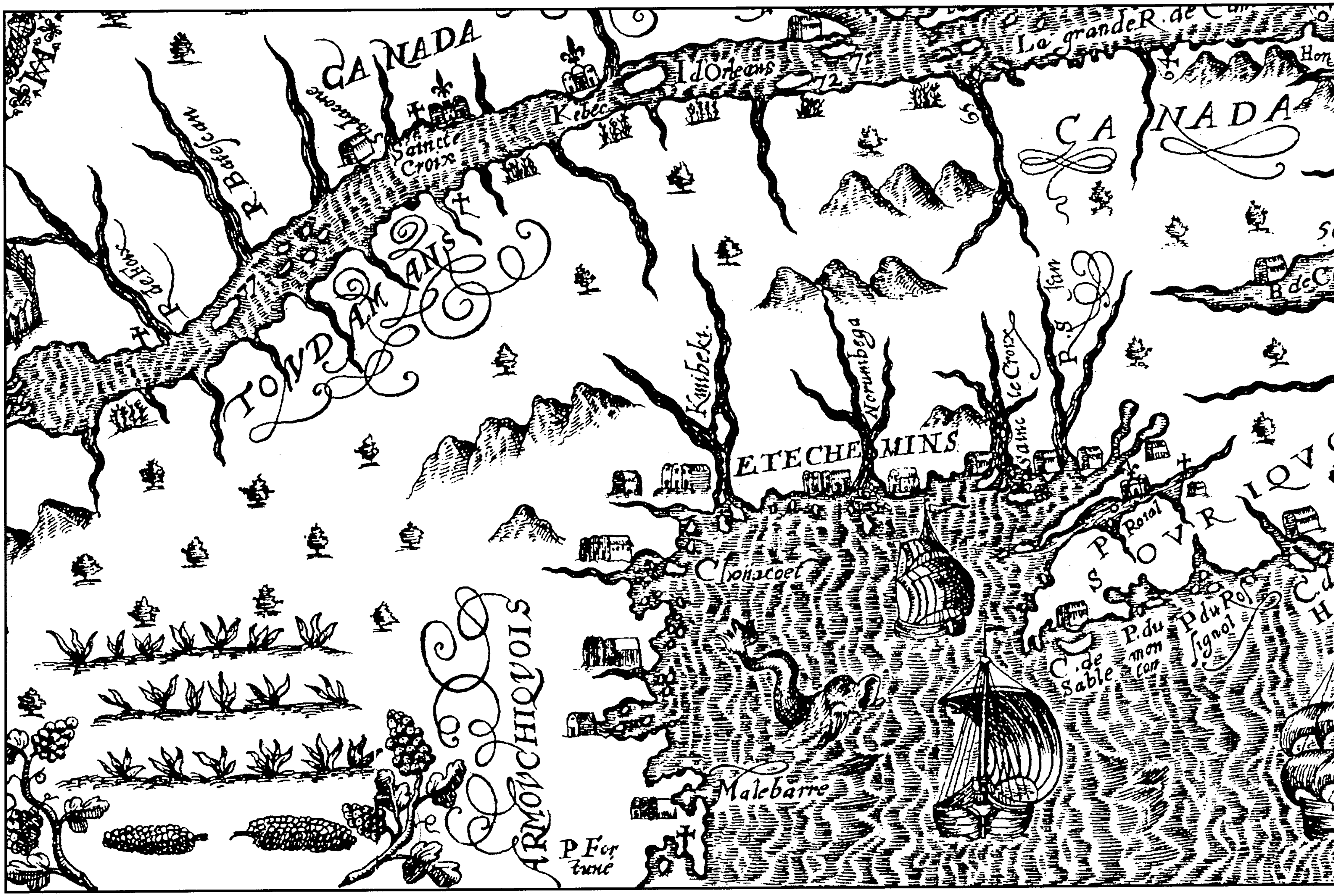


Figure 19. Northern New England and adjacent Canada as known by Europeans at the beginning of the seventeenth century; excerpt of Lescarbot (1609) from Morris (1976).

evidence for trade with French at Pentagoet *circa* 1630 after the French expanded west again (Bourque 1989:265). The English took back control of Pentagoet in 1654; but the French were back in 1671. During the years following the French actively engaged in the fur trade and interacted closely with the Etchemin (Bourque and Whitehead 1985).

After King Philips War (*circa* 1675), French documents refer to the Native American group east of the Penobscot River as the "Canibas" (Bourque 1989:267). In 1689, the Abenakis, or Canibas, were said to occupy the coast above Acadia inland from the Union River west to the St. George River and that they seasonally dispersed for hunting as far away as Quebec. Canibas presence at Pentagoet was common near the end of the seventeenth century (Bourque 1989:267-268). The territories ascribed to the Canibas and Maliseets, east of the Union River, overlap in historic accounts so there is some uncertainty about this period. The Maliseets and the Passamaquoddies are both descendants of the Etchemins (Bourque 1989:268-269; Snow 1976; Spiess 1995:2).

Remnant Native American groups were weakened in waves of epidemics recorded in 1695 and 1698 (Bourque 1989:270). By 1701, French influence had diminished in eastern Maine, ending a dynamic period of Native American and European interaction at Pentagoet. Subsequently, French and Indian raids along Maine's coast in 1703, during Queen Anne's War, led to massive retaliation by the Massachusetts colony. Native Americans withdrew into Quebec remaining until the end of the war in A.D. 1713 (Bourque 1989; Prins and Bourque 1987:148-149). The area remained under French control, mainly through trading posts and small forts, such as Pentagoet (Faulkner and Faulkner 1987) until after the War of 1812. English settlement of eastern Maine was slow to become established as hostilities between Native Americans and colonists continued until after 1750 (Clark 1977:36-37; Prins and Bourque 1987). Hancock County remained almost wilderness through the eighteenth century. The head waters of the Union River had "not yet been explored" at the turn of the century (Sullivan 1795:38-39; Figure 20).

A context for the archeology of the Early Contact Period has been developed by Spiess (1991b; 1995:5-16) as part of the Maine State Plan for Prehistoric Archeology (Spiess 1990). Twelve research themes are defined for the Early Contact Period (Spiess 1995):

1) Culture History;
2) Settlement Pattern;
3) Subsistence;
4) Mortuary Practices;
5) Transportation, Travel, Trade and Commerce,
6) Social and Political Organization;
7) Laboratory and Field Techniques;
8) Anthropological Archeology;
9) Human Biology;
10) Environmental Studies;
11) Non-Mortuary Religious Behavior; and
12) Cultural Boundaries.

The eligibility of an Early Contact period site to the National Register of Historic Places is contingent upon three criteria (Spiess 1995:16-17):

1) The site must contain a component clearly datable to the Early Contact period and easily separable by horizontal or vertical stratigraphy from earlier and later components;
2) There is no evidence of the site dating after 1676; and
3) The site can make an extraordinary contribution to any of the research themes outlined above.

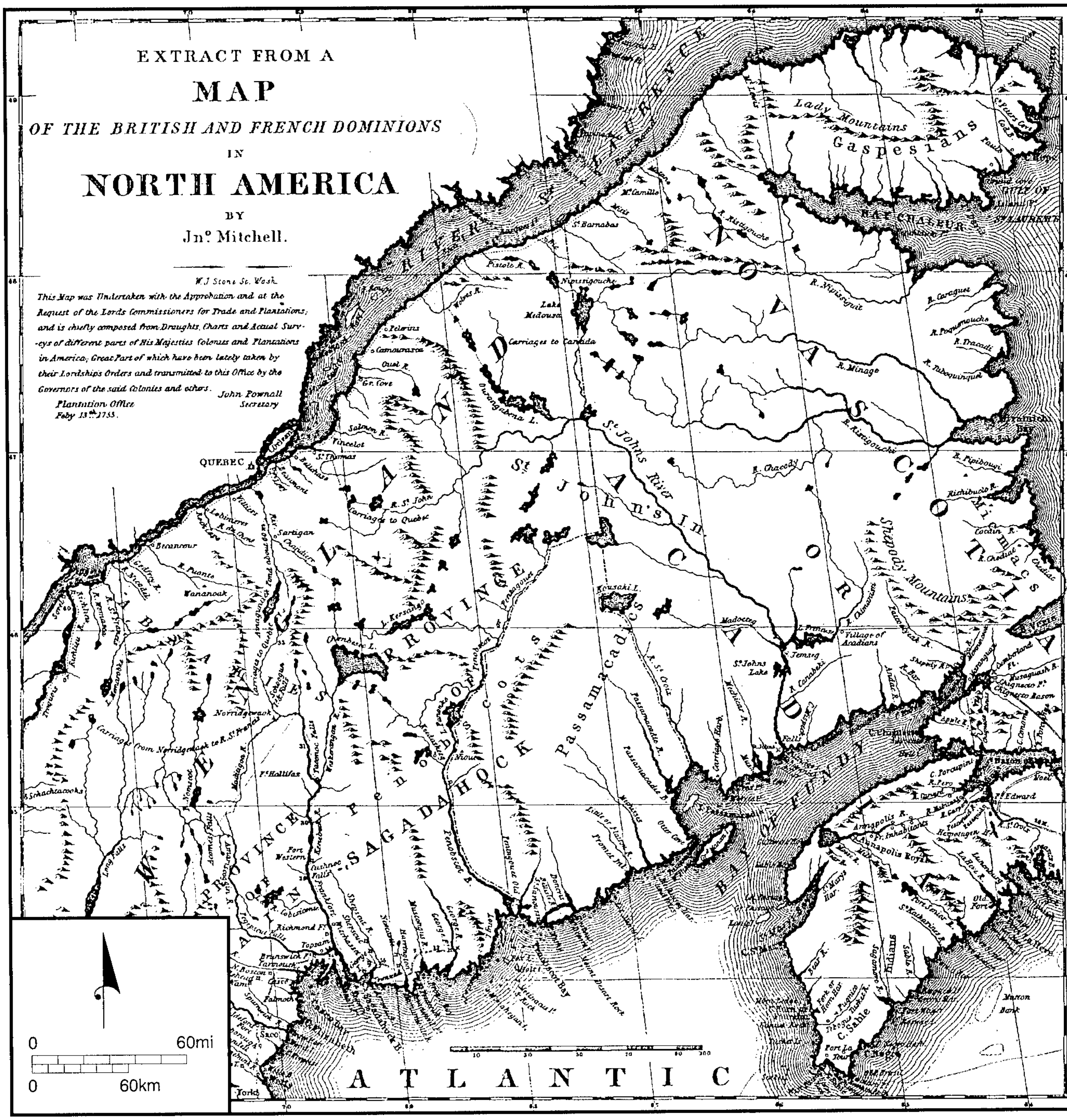


Figure 20. Northern New England and adjacent Canada in the mid-eighteenth century; source: Mitchell (1755) from Morris (1976).

Site 75.5 meets criteria 2 and to some extent 3, but not 1. While at least one component at the site appears to date to the Early Contact period, the component is not "...easily separable by horizontal or vertical stratigraphy from earlier and later components". That is, the Early Contact component is not easily separated from the earlier late Ceramic period occupation. Thus, while Site 75.5 has produced important information on the Early Contact period in Maine, it is not considered eligible to the National Register of Historic Places because it does not meet a necessary criterion, as cited above. Accordingly, no further archeological consideration of Site 75.5 is warranted or recommended.

4.0 SUMMARY AND RECOMMENDATIONS

4.1 Summary

A Phase II evaluation of prehistoric archeological Site 75.5 on the northern shore of Great Pond, Hancock County, Maine was conducted by John Milner Associates, Inc. The site was identified during an earlier Phase I archeological survey of the Dow Pines Recreation Area under the jurisdiction of the U.S. Air Force. The Phase II evaluation entailed the excavation of 9.5 1-x-1-m test units across the site area. Great Pond was dammed *circa* 90 years ago for a period of approximately 50 years raising the water level approximately 10 ft above the current level. The site was partially eroded while the Great Pond was dammed. Approximately 50 square meters of the site area (±8 m diameter) was buried and preserved under beach and lake deposits. Based on radiocarbon and OCR dating, the preserved archeological deposits date between A.D. 1240 and 1650–the late Ceramic and Early Contact periods. Debitage flakes and small unifacial tools or tool fragments of a variety of stone materials were found, but no typologically diagnostic prehistoric artifacts were recovered. The small unifacial tools are considered typical of the late Ceramic period in Maine. A possible gunflint made from a non-European chert was recovered. In context with late prehistoric materials and associated with radiocarbon and OCR dates, the gunflint may be considered diagnostic of the Early Contact period. Fire-cracked rock from the site resulted from open fires. Calcined (burnt) bone fragments of unidentifiable mammal, beaver, and probably deer bone were recovered chiefly from the beach deposits. The site was probably occupied as a convenient stop for small groups traveling up and down the Union River drainage system for hunting, trapping, and other activities. Hides or furs may have been processed on the site.

The preservation of the site along the shores of a dammed lake is unusual. Fluctuating water levels on dammed lakes typically leads to the erosion of sites at the shore. Site 75.5 was preserved because the water level rose rapidly, stayed level for some time, and then fell more or less gradually. A portion of the site below wave base, just offshore of the dammed shoreline was preserved under lake silts and clays, and then covered by beach sand and gravel. Thus, Site 75.5 provides a case study of how archeological sites may be partially preserved under conditions of fluctuating water levels along the shores of Maine lakes. A model for the preservation potential of such sites could be developed.

Site 75.5 is situated on a small point of land anchored to a prominent bedrock outcrop. The southern exposure is such that the site receives more sunlight throughout the year than any other location on Great Pond. Shaded relief models based on readily available digital elevation models may provide a tool for prediction of site locations along lake shores in conjunction with other data. Southern or southeastern aspects that are shaded by surrounding topography may be less likely to attract occupation or settlement than well lit localities.

4.2 Recommendations

Site 75.5 is considered eligible to the National Register of Historic Places under Criterion D. Preservation *in situ* is preferred over data recovery at this time (Spiess 1995:17). No further archeological research is recommended for Site 75.5 at this time. The Dow Pines Recreation Area property will remain in government possession. If the property passes out of Federal Government possession, then this recommendation should be reviewed. The setting of the site may be protected from development, lumbering, and construction by the Maine State law. If the site becomes threatened in the future, then steps should be taken to protect the site, or data recovery excavations should be conducted.

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APPENDIX I.

PHASE II SCOPE OF WORK

TECHNICAL PROPOSAL

Phase II Evaluation of Prehistoric Site 75.5, Dow Pines Recreation Area, Great Pond, Hancock County, Maine

submitted to

Geo-Marine, Inc.
550 East 15th Street
Plano, Texas 75074

John Milner Associates, Inc.
535 North Church Street
West Chester, Pennsylvania 19380

October 2000

Introduction

Prehistoric Site 75.5 was identified in Subsurface Survey Area (SSA) 5 during a Phase I cultural resources survey of the Dow Pines Recreation Area conducted by John Milner Associates, Inc. (JMA) in July, 2000 (Kellogg and McVarish 2000). The United States Air Force (USAF) intends to dispose of the Dow Pines property by public sale. Under the provisions of the National Historic Preservation Act of 1966, as amended, the Archeological and Historical Preservation Act of 1974, as amended, the National Environmental Polity Act of 1969, and Executive Order #11593 the USAF is required to assess the affects of this proposed action on historic properties.

Summary of Phase I Archeological Survey

Site Setting

SSA 5 is on a small point of land bordered by beaches facing to the east and west anchored by a large bedrock outcrop at the tip of the point. Behind (north of) the prominent granite bedrock outcrop at the tip of the small point, the ground surface is covered by sand and small rounded gravels. A large rhyolite flake was found on the surface in this area. Farther north and east the area is wooded in conifers. A small area of relatively flat terrain is present, but it pinches out to the east and west of the point of land. Farther north at a slightly higher elevation is a second relatively flat area extending east to west. The two terraces, or benches, are separated by a low (10-15 cm high) erosional scarp at the high water mark of the former dammed lake. A more significant erosional scarp is present to the west of the benches. Larger trees are present above the erosional scarp and smaller, presumably younger trees are present below the scarp. To the east, north and west, the ground slopes more steeply. Thus, a triangular area of approximately 200 square meters is habitable at SSA 5.

Subsurface Investigations

Three transects of STUs were excavated in SSA 5 roughly parallel to the lake shore. Transects 1 and 2 were on the lower terrace, and Transect 3 was along the higher terrace farther from the lake shore. STUs in Transect 3 encountered thin soils developed on glacial till. STUs in Transects 1 and 2 below the erosional scarp encountered sand and gravel beach deposits ranging from 35 to 60 cm thick overlying truncated till soils. A limited area of intact soil horizons was identified centrally on the lower bench. None of the STUs in Transect 3 above the dammed lake level yielded cultural material. One STU each in Transects 1 and 2 yielded prehistoric artifacts. Radial STUs were excavated around the positive STU at four meter intervals. Artifacts were recovered from three of the radials. Four of the nineteen STUs excavated in SSA 5 yielded prehistoric artifacts; however, the artifacts were recovered from redeposited beach lags in two of the STUs (Table 3). A quantity (675 grams) of fire-cracked rock (FCR) was recovered from the preserved A-soil horizon in STU 2-1S. Some charcoal was present in the A horizon, but the association between the FCR and the charcoal could not be clearly established in the STU excavations at a depth of 45 cm below the ground surface. Three unifacial tools fashioned on debitage flakes were recovered from STU 2-1S in apparent association with the FCR. The evidence suggests a work area around a hearth feature. No diagnostic artifacts were recovered from the STU excavations, so that neither a temporal age, nor cultural affiliation can be assigned to the site.

Intact A-soil horizons were encountered in STUs 2-1 and 2-1S. It appears that the shore line at the higher, dammed lake level was eroded along a 15 meter wide strip parallel to the low erosional scarp. Material eroded from the shore was redeposited at lower elevations, protecting a small area of former upland soils from erosion. At the undammed lake level the very tip of the point is also eroded during higher water levels and probably over-washed during storms blowing from the west. Artifacts recovered from the beach deposits were most likely derived from an archeological site at this locality. A small area of the site remains intact beneath beach deposits. An archeological feature is probably associated with the intact soils.

The site location is on a small point of land with a commanding view of the lake. The beach on the west side of the point is ideal for landing small boats, whereas the lake shore to the east and west is rocky with an erosional scarp. Ingress and egress between the land and water may be the determining factor in the location of the site at this locality. Neither the inlet nor outlet streams are visible from the site, but the main body of Great Pond can be seen. The large bedrock outcrop at the tip of the point provides both a vantage point and a landmark. Other large bedrock outcrops and small points are present along the shore of Great Pond to the east, but they are not accompanied by a similar beach. Likewise, the opposite shore of the lake possesses neither prominent points nor accommodating beaches. A Phase II evaluation of the Site 75.5 was recommended.

Phase II Research Design

The purpose of the Phase II evaluation of Site 75.5 is to provide information sufficient for a National Register determination for the site. The goal of the Phase II field investigation is to more clearly establish the nature of the site occupation, the potential for intact archeological features, obtain a larger sample of artifacts, and determine the age of the site occupation(s). No diagnostic cultural artifacts were recovered during the Phase I investigation of the site; therefore, the site lacks a clear cultural context to allow evaluation against the provisions of the Maine State Plan (Spiess 1990). The boundaries of the site are well-established and limited by the lake on two sides and negative STU excavations on the third side; however, the boundaries of the intact soils are unknown. The gross stratigraphy of the site is known, but absolute elevation control is lacking for the STU excavations. Thus, the Phase II evaluation of the site will be aimed at determining the cultural context of the site and a thorough documentation of the site setting and stratigraphy.

To document the setting and stratigraphy of the site the proposed Phase II evaluation will include a detailed topographic survey of the site and its vicinity. In addition, a sample of trees will be cored for age determinations to allow for estimates of the timing of lake level changes associated with a logging dam on Great Pond *circa* 1900. Larger excavation units (1-x-1-m squares) are proposed to expose stratigraphic profiles and occupation surfaces to more detailed observation and documentation. Nine units are proposed arranged in a "+" pattern centered on the area of intact soils identified in the Phase I survey. The STU that revealed a possible feature will be expanded into a 1-x-1-m unit. The beach deposits overlying the intact soils on the site will be excavated as a single stratigraphic unit and screened to recover any artifacts. The intact soils below the beach deposits will be sampled by flotation to recover any faunal or floral remains that may be associated with the prehistoric occupation of the site. All suspected fire cracked rock will be collected for analysis of the breakage patterns that may indicate cooking methods.

To establish the cultural context of the site a larger sample of artifacts will be sought both from the beach deposits and from the intact soils below. Failing the recovery of diagnostic artifacts, two dating techniques are proposed. Charcoal will be collected from secure prehistoric contexts, i.e., hearth or pit features, if present, for identification and radiocarbon dating. Soil samples will be collected for Oxidizable Carbon Ration (OCR) analysis. OCR is a calibrated relative dating method that has been used in the absence of charcoal to help establish the age of prehistoric archeological sites in northeastern North America and elsewhere (Frink 1992, 1994). OCR soil samples will be collected from soils above and below the erosional scarp at the elevation of the dammed lake level and from stratigraphic columns on the site. Soils above the elevation of the former lake shore should be the same age as the soils below the beach deposits, while soils below the higher lake shore should be the same age as the trees that have grown since the dam was removed.

If charcoal suitable for radiocarbon dating is not recovered from the excavations, then an age estimate for the site can be based on the OCR analysis.

Based on the results of the Phase II evaluation, the National Register eligibility, or ineligibility of the site will be evaluated with respect to the Maine State Plan (Spiess 1990) and the relevant Comprehensive Planning (Time period) Study Units and associated Research Significance Themes.

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APPENDIX II.

ARTIFACT INVENTORY

REVISED ARTIFACT INVENTORY: ME SITE SURVEY NO. 75.5
DOW PINES RECREATION AREA PHASE I SURVEY
HANCOCK COUNTY, MAINE
JOHN MILNER ASSOCIATES, INC. MARCH 2001

LOT	STU	STRATUM	DEPTH (CMBS)	CT	ARTIFACT DESCRIPTION
1		Surface		1	Flake >40mm: Kineo Rhyolite
2		Surface		1	Core Fragment: Kineo Rhyolite
3		Surface		1	Flake 20-30mm: Kineo Rhyolite
4	2-1	B	25-30	1	Shatter 10-20mm: Quartz
4	2-1	B	25-30	1	Shatter 20-30mm: Quartz
4	2-1	B	25-30	1	Flake 10-20mm: Kineo Rhyolite
5	1-2N	Beach	10-20	1	Flake 10-20mm: Kineo Rhyolite
6	1-3W	Beach	10-20	1	Uniface: Chert
7	1-3W	Beach	30-40	1	Core Fragment: Kineo Rhyolite
8	2-1S	Beach	0-10	1	Flake 10-20mm: Kineo Rhyolite
9	2-1S	Beach	10-20	1	Flake 10-20mm: Kineo Rhyolite
10	2-1S	Beach	20-30	1	Flake 10-20mm: Kineo Rhyolite
11	2-1S	Beach	30-40	1	Flake 10-20mm: Kineo Rhyolite
11	2-1S	Beach	30-40	1	Biface Fragment (Tip): Quartz
11	2-1S	Beach	30-40	1	Flake 0-10mm: Kineo Rhyolite
12	2-1S	Beach/A	40-50	1	Uniface: Kineo Rhyolite
12	2-1S	Beach/A	40-50	1	Uniface: Chert
12	2-1S	Beach/A	40-50	20	Fire-Cracked Rock: Kineo Rhyolite
12	2-1S	Beach/A	40-50	1	Flake 10-20mm: Quartz
12	2-1S	Beach/A	40-50	21	Fire-Cracked Rock: Quartz
12	2-1S	Beach/A	40-50	2	Flake 0-10mm: Kineo Rhyolite
12	2-1S	Beach/A	40-50	1	Flake 10-20mm: Kineo Rhyolite
12.1	2-1S	A/B; East Wall	42	1	Uniface: Kineo Rhyolite
13	2-1S	Beach/B	50-60	1	Core Fragment: Kineo Rhyolite
29	1-3E	Beach/B	10-20	1	Flake 0-10mm: Kineo Rhyolite
			TOTAL	63	

ARTIFACT INVENTORY: ME SITE SURVEY NO. 75.5
DOW PINES RECREATION AREA PHASE II EVALUATION
HANCOCK COUNTY, MAINE
JOHN MILNER ASSOCIATES, INC. MARCH 2001

LOT	UNIT	COORD	STRAT	DEPTH (CMBS)	COUNT	ARTIFACT DESCRIPTION	COMMENTS
14	1	N14E19	I	0-27	1	Faunal: Calcined Bone	
14	1	N14E19	I	0-27	1	Flake 0-10mm: Kineo Rhyolite	
14	1	N14E19	I	0-27	1	Flake 0-10mm: Quartz	
14	1	N14E19	I	0-27	7	Flake 10-20mm: Kineo Rhyolite	
14	1	N14E19	I	0-27	1	Flake 20-30mm: Kineo Rhyolite	
14	1	N14E19	I	0-27	1	Flake 30-40mm: Kineo Rhyolite	
15	1	N14E19	II	29	1	Fire-Cracked Rock: Untyped	Limestone
16	2	N20E19	I	0-38	1	Flake 10-20mm: Kineo Rhyolite	
17	2	N20E19	II	38-52	1	Shatter 10-20mm: Quartz	
17	2	N20E19	II	38-52	1	Flake 10-20mm: Quartz	
17	2	N20E19	II	38-52	1	Flake 20-30mm: Kineo Rhyolite	
18	3	N18E17	I	0-40	13	Faunal: Calcined Bone	
18	3	N18E17	I	0-40	1	Shatter 10-20mm: Quartz	
18	3	N18E17	I	0-40	1	Flake 0-10mm: Quartz	
18	3	N18E17	I	0-40	1	Flake 10-20mm: Quartz	
18	3	N18E17	I	0-40	1	Flake 10-20mm: Kineo Rhyolite	
18	3	N18E17	I	0-40	1	Flake 20-30mm: Kineo Rhyolite	
18	3	N18E17	I	0-40	2	Flake 20-30mm: Rhyolite	
19	3	N18E17	II	40-50	5	Faunal: Calcined Bone	
19	3	N18E17	II	40-50	1	Shatter 0-10mm: Quartz	
19	3	N18E17	II	40-50	5	Flake 0-10mm: Kineo Rhyolite	
19	3	N18E17	II	40-50	2	Flake 10-20mm: Quartz	
19	3	N18E17	II	40-50	1	Flake 10-20mm: Chalcedony	
19	3	N18E17	II	40-50	9	Flake 10-20mm: Kineo Rhyolite	
19	3	N18E17	II	40-50	1	Flake 20-30mm: Kineo Rhyolite	
19	3	N18E17	II	40-50	1	Biface Fragment: Kineo Rhyolite	Tip
20	5	N18E18	I	20-50	6	Faunal: Calcined Bone	
20	5	N18E18	I	20-50	3	Fire-Cracked Rock: Quartz	
20	5	N18E18	I	20-50	2	Flake 0-10mm: Kineo Rhyolite	
20	5	N18E18	I	20-50	1	Flake 10-20mm: Quartz	
20	5	N18E18	I	20-50	1	Flake 10-20mm: Kineo Rhyolite	
20	5	N18E18	I	20-50	2	Flake 20-30mm: Kineo Rhyolite	
21	5	N18E18	II	50-55	1	Coal, Wood: Charcoal	Sample
21	5	N18E18	II	50-55	7	Fire-Cracked Rock: Quartz	
21	5	N18E18	II	50-55	18	Fire-Cracked Rock: Untyped	Limestone
21	5	N18E18	II	50-55	1	Shatter 10-20mm: Quartz	
21	5	N18E18	II	50-55	1	Flake 0-10mm: Chert	
21	5	N18E18	II	50-55	2	Flake 0-10mm: Quartz	
21	5	N18E18	II	50-55	1	Flake 0-10mm: Kineo Rhyolite	
21	5	N18E18	II	50-55	1	Flake 10-20mm: Chert	
21	5	N18E18	II	50-55	2	Flake 10-20mm: Kineo Rhyolite	
21	5	N18E18	II	50-55	2	Flake >40mm: Kineo Rhyolite	
21	5	N18E18	II	50-55	2	Uniface: Chert; Possible Gunflint	Refit
21	5	N18E18	II	50-55	1	Uniface Fragment: Chert	

ARTIFACT INVENTORY: ME SITE SURVEY NO. 75.5
DOW PINES RECREATION AREA PHASE II EVALUATION
HANCOCK COUNTY, MAINE
JOHN MILNER ASSOCIATES, INC. MARCH 2001

LOT	UNIT	COORD	STRAT	DEPTH (CMBS)	COUNT	ARTIFACT DESCRIPTION	COMMENTS
22	6	N20E22	I	0-27	1	Faunal: Calcined Bone	
22	6	N20E22	I	0-27	1	Flake 10-20mm: Quartz	
23	7	N34E19	I	3-10	1	Coal, Wood: Charcoal	Sample
23	7	N34E19	I	3-10	61	Faunal: Calcined Bone	
24	8	N20E15	I	0-47	16	Faunal: Calcined Bone	
24	8	N20E15	I	0-47	4	Shatter 0-10mm: Quartz	
24	8	N20E15	I	0-47	1	Shatter 10-20mm: Quartz	
24	8	N20E15	I	0-47	3	Flake 0-10mm: Quartz	
24	8	N20E15	I	0-47	8	Flake 0-10mm: Kineo Rhyolite	
24	8	N20E15	I	0-47	3	Flake 10-20mm: Quartz	
24	8	N20E15	I	0-47	1	Flake 10-20mm: Chert	
24	8	N20E15	I	0-47	13	Flake 10-20mm: Kineo Rhyolite	
24	8	N20E15	I	0-47	1	Flake 20-30mm: Chert	
24	8	N20E15	I	0-47	2	Flake 20-30mm: Kineo Rhyolite	
24	8	N20E15	I	0-47	2	Flake 30-40mm: Kineo Rhyolite	
24	8	N20E15	I	0-47	2	Uniface Fragment: Quartz	
25	8	N20E15	IA	39-53	1	Flake 0-10mm: Kineo Rhyolite	
26	8	N20E15	II	53-57	1	Coal, Wood: Charcoal	Sample
26	8	N20E15	II	53-57	4	Fire-Cracked Rock: Quartzite	
26	8	N20E15	II	53-57	2	Fire-Cracked Rock: Sandstone	
26	8	N20E15	II	53-57	6	Fire-Cracked Rock: Untyped	Limestone
26	8	N20E15	II	53-57	1	Flake 10-20mm: Kineo Rhyolite	
27	9	N23E18	I	0-34	1	Flake 20-30mm: Kineo Rhyolite	
27	9	N23E18	I	0-34	2	Faunal: Calcined Bone	
28	10	N34E19	I	0-10	876	Faunal: Calcined Bone	
				TOTAL	1130		

APPENDIX III.

OCR DATING

Calculated OCR DATE Report

For John Milner Associates, Inc.

20-Mar-01

OCR

OXIDIZABLE CARBON RATIO

Sample Id:	ACT # 4946		
Site Id #:	Dow Pines		
Location:	Unit 1		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	312	YBP(1950)	+/- 9

Sample Id:	ACT # 4947		
Site Id #:	Dow Pines		
Location:	Unit 1		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	323	YBP(1950)	+/- 9

Sample Id:	ACT # 4948		
Site Id #:	Dow Pines		
Location:	Unit 1		
Feature Type:	Cultural		
Feature Designation:	Stratum 4		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	540	YBP(1950)	+/- 16

Sample Id:	ACT # 4949		
Site Id #:	Dow Pines		
Location:	Unit 3		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	310	YBP(1950)	+/- 9

Calculated OCR DATE Report

For John Milner Associates, Inc.

20-Mar-01

OXIDIZABLE CARBON RATIO

Sample Id:	ACT # 4950		
Site Id #:	Dow Pines		
Location:	Unit 2		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	308	YBP(1950)	+/- 9

Sample Id:	ACT # 4951		
Site Id #:	Dow Pines		
Location:	Unit 2		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	324	YBP(1950)	+/- 9

Sample Id:	ACT # 4952		
Site Id #:	Dow Pines		
Location:	Unit 3		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	350	YBP(1950)	+/- 10

Sample Id:	ACT # 4953		
Site Id #:	Dow Pines		
Location:	Unit 7		
Feature Type:	Cultural		
Feature Designation:	Stratum 1-2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	265	YBP(1950)	+/- 7

Calculated OCR DATE Report

For John Milner Associates, Inc.

20-Mar-01

OCR
OXIDIZABLE CARBON RATIO

Sample Id:	ACT # 4954		
Site Id #:	Dow Pines		
Location:	Unit 9		
Feature Type:	Cultural		
Feature Designation:	Stratum 1		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	268	YBP(1950)	+/- 8

Sample Id:	ACT # 4955		
Site Id #:	Dow Pines		
Location:	Unit 9		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	516	YBP(1950)	+/- 15

Sample Id:	ACT # 4956		
Site Id #:	Dow Pines		
Location:	Unit 9		
Feature Type:	Cultural		
Feature Designation:	Stratum 2		
Sample Recieved:	12/1/00		
Calculated OCR DATE:	578	YBP(1950)	+/- 17

APPENDIX IV.

MACROPLANT AND ZOOARCHEOLOGICAL REMAINS

MACROPLANT AND ZOOARCHEOLOGICAL REMAINS FROM PHASE II ARCHEOLOGICAL EVALUATION OF SITE 75.5, DOW PINES RECREATION AREA, HANCOCK COUNTY, MAINE

Report submitted to:

John Milner Associates, Inc.
535 North Church Street
West Chester, Pennsylvania 19380

Report submitted by:

New South Associates
6150 East Ponce de Leon Avenue
Stone Mountain, Georgia 30083

Lisa D. O'Steen and Leslie E. Raymer, Co-Authors

New South Associates Technical Report # 820

January 25, 2001

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I. INTRODUCTION

John Milner Associates, Inc. implemented a program of Phase II testing at site 75.5 within the Dow Pines Recreation Area, Hancock County, Maine. Samples of carbonized macroplant remains and all faunal remains collected during Phase II testing were submitted to New South Associates for zooarcheological and archeobotanical analysis. The objectives of this subsistence study are: (1) to assess faunal and macroplant preservation and (2) to examine the carbon samples prior to their submission to Beta-Analytic, Inc. for radiocarbon dating.

II. ANALYSIS PROCEDURES

ZOOARCHEOLOGICAL ANALYSIS METHODS

Vertebrate faunal remains were identified using standard zooarcheological analysis techniques and a comparative skeletal collection. Each bone fragment submitted for analysis was examined and included in this analysis. Faunal remains were recovered in eight test units from 0.64 cm (1/4 in) screened samples.

Zooarcheological analysis spreadsheets record all remains by provenience, taxon, number of individual specimens (NISP), body part (BP), element fusion (PxF, DxF), element side (SYM), burning (BN), rodent or carnivore gnaw marks (RD, CN), and weight (GM) (Appendix *). No evidence of cut marks was found in the assemblage, so columns used to record cut marks were deleted from the spreadsheet.

The minimum number of individuals (MNI) was calculated for each species, genus, and family, (where appropriate) from the sites. MNI was calculated using paired left and right elements. Where possible, comparative age, sex, and size of animals was determined and utilized in calculation of MNI (Schmid 1972). The assemblage size, evident differential preservation of only calcined bone, and the possible mixed historic and prehistoric context of some bone does not support the calculation of biomass, or the estimated amount of meat, contributed by a particular species' bone weight. All of the biomass in this assemblage is provided by mammals or unidentified bone. Faunal remains are tabulated in Table 1.

ARCHEOBOTANICAL ANALYSIS METHODS

Three bulk carbon samples were submitted for analysis. These samples were collected directly during excavation, and were neither dry-screened nor subjected to water flotation prior to analysis. Each sample was first dry sieved through nested geologic sieves (2.0 mm, 1.0 mm, 0.71 mm). Each fraction was sorted, and all carbonized material was separated from soil particles, root mat, and other modern contaminants. The carbonized macroplant remains were then carefully examined and separated by botanical type (wood charcoal, seeds, etc.). Seeds and wood charcoal were then identified with standard reference texts and a modern reference collection.

Identifications were attempted on greater than 2.0 mm wood fragments. Whenever possible, wood specimens were identified to genus. Segments that were too fragmentary or poorly preserved to specifically identify were placed in the more general categories of conifer, ring porous hardwood, diffuse porous hardwood, or unidentifiable hardwood. Wood taxa were identified by comparison with charred and natural transverse, tangential, or radial thin sections of modern wood, as well as textbook illustrations. After identification, all of the wood charcoal found in the samples was forwarded to Beta-Analytic, Inc. for radiocarbon analysis. Partially carbonized wood specimens and seeds were removed prior to submission for radiocarbon dating. The macroplant remains are tabulated in Tables 2 and 3.

Table 1. Dow Pines Site Faunal Remains.

BAG	UNIT	STRAT	LEVEL	NISP	TAXON	BP	POR	PXF	SYM	BN	RD	CN	WEIGHT (gm)	Notes
2	1	I	1	1	UD BONE	UD	FR			1	N	N	0.2	
6	3	I	1	3	UD BONE	UD	FR			3	N	N	0.6	
6	3	I	1	10	UD MAMMAL	UD	FR			10	N	N	5.2	
7	3	II	2	1	UD MAMMAL	C/T	FR			1	N	N	0.6	
7	3	II	2	3	UD MAMMAL	UD	FR			3	N	N	1w0	
7	3	II	2	1	UD BONE	UD	FR			1	N	N	<0.1	
8	5	I	2	6	UD BONE	UD	FR			6	N	N	2.1	
9	6	I	1	1	UD BONE	UD	FR			1	N	N	0.1	
11	7	I	1	31	UD MEDIUM-LARGE MAMMAL	UD/LBN	FR			31	N	N	35.6	
11	7	I	1	83	UD MAMMAL	UD	FR			83	N	N	29.8	
11	7	I	1	250	UD BONE	UD	FR			250	N	N	28.2	
11	7	I	1	1	CF. ODOCOILEUS VIRGINIANUS (PROBABLE DEER)	ULN	PX		L	1	N	N	1.8	
12	9	I	1	2	UD BONE	UD	FR			2	N	N	0.3	
13	8	I	1	1	CF. CASTOR CANADENSIS (PROBABLE BEAVER)	ULN	PX	PF	R	1	N	N	1.4	2 PCS MEND-40% SMALLER THAN
13	8	I	1	12	UD MAMMAL	UD	FR			12	N	N	2.7	
13	8	I	1	1	UD SMALL MAMMAL	C/T	FR			1	N	N	0.2	
13	8	I	1	1	UD SMALL MAMMAL	HUM?	DS			1	N	N	0.4	
16	10	I	1	79	UD MEDIUM-LARGE MAMMAL	UD/LBN	FR			79	N	N	86.2	
16	10	I	1	796	UD MAMMAL	UD	FR			796	N	N	142.2	
16	10	I	1	1	CF. ODOCOILEUS VIRGINIANUS (PROBABLE DEER)	FEM	DS			1	N	N	4.7	
TOTAL				1284						1284			343.3	

Table 2. Carbonized Macroplant Remains.

Bag	Unit	Stratum	Lot	Estimated Age	Carbonized Sample Weight (all wood)	Carbonized Seeds (ct)	Comments
10	5	II	21	500-2,000 years	5.12	None	No carbonized roots, minor resin, 1 partially carbonized fragment removed
11	7	I	23	<100 years	1.23	5	No carbonized roots, minor quantities of carbonized bone removed
	8	II	26	500-2,000 years	5.7	None	No carbonized root fragments, no other macroremains
				Total:	12.05		

Table 3. Identified Wood Charcoal and Seeds.

	Lot 21	Lot 23	Lot 26	Total
Seeds (Quantity)				
Rubus sp.		3		3
Unidentifiable Fragment		2		2
Wood Charcoal (No. of Identfied Specimens)				
Pine	10	5	11	26
Conifer	1		4	5

III. ANALYSIS AND INTERPRETATION

ZOOARCHEOLOGICAL ANALYSIS

A total of 1284 vertebrate remains (343.3 gm) was recovered from Archaic period site 75.5. All of the recovered bone is calcined, and none of the remains appears to be modern, although the highest density of bone was recovered in possibly mixed contexts with modern lakeshore debris (Test Units 6, 7, and 10). A probable white-tailed deer (cf. *Odocoileus virginianus*) was the only species identified from a cluster of calcined bone and charcoal in these units. A deer ulna and femur fragment were identified. Unfortunately no prehistoric artifacts were found in association.

White-tailed deer are ubiquitous throughout much of the United States and southern Canada. They inhabits woodlands,, brushy areas, and farmland. Primarily nocturnal, deer graze on green plants, including aquatic ones in the summer; eating acorns, beech nuts, and other nuts and corn in the fall; and browsing on woody vegetation in the winter. Bucks and does herd separately most of the year, but in winter gather together, or "yard up". Deer were almost extinguished by overhunting in much of the southeastern, northeastern, and midwestern United States, but have been successfully restocked (Whitaker 1980:654-655).

An ulna fragment, probably the remains of a beaver (*Castor canadensis*) was recovered from Test Unit 8. The proximal epiphysis on this ulna is almost completely fused, indicating a nearly adult animal. Following a comparison of this element with 14 beaver skeletons in the collection of the Museum of Natural History at the University of Georgia, this bone was found to be 40 percent smaller than male and female adult and subadult beaver ulnas. All of the beavers in this collection were acquired from Southeastern populations, and this may explain the larger size when compared to the specimen from site 75.5. Whitaker (1980:457) cites a weight range of 45 to 60 pounds, and rarely over 100 pounds for North American beavers. Snyder (2001:1) notes that beavers in New Hampshire weigh between 30 and 100 pounds, although most range between 35 and 65 pounds. The specimen from site 75.5 might fall at the lowest range for the Northeastern region. Burning of this element may have resulted in some shrinkage, but this does not completely explain the large discrepancy in size.

Trapping nearly eliminated beavers from New Hampshire and elsewhere in the northeastern United States by the late 1800s, and they were restocked during the early and middle twentieth century. Beavers consume leaves, bark, sprouts, fruits and buds of shrubs and trees, as well as aquatic plants. They typically feed within 100 yards of a pond. They dam small to large flowing brooks, streams, or rivers, usually bordered by woodlands. They also inhabit marshes and lakes. They are highly territorial and pair for life. Breeding occurs in the winter, and kits are born in May or June. Beaver colonies usually consist of an adult pair, he young of the year, and the young of the previous year. Two-year-olds leave the colony in late spring to establish new colonies of their own (Synder 2001:1-2).

A possible humerus fragment, and the carpal or tarsal of a small unidentified mammal(s) were also found in Test Unit 8. Neither of these elements could be identified to genus or species. Bone from Test Units 1, 3, 6, and 9 consisted of unidentified bone or unidentified mammal bone fragments (Appendix A).

ARCHEOBOTANICAL ANALYSIS

Carbonized macroplant remains recovered from Lots 21, 23, and 26 consisted of 12.05 grams of wood charcoal and five carbonized seeds. The carbonized seed assemblage derived from Lot 23, which has an estimated age of less than 100 years. Identified taxa included 3 *Rubus* sp. (blackberry/raspberry) and 2 unidentifiable seed fragments. All of the identified wood charcoal specimens were either pine or indeterminate conifer, which indicates that most, if not all of the wood in these radiocarbon samples derived from pines. The radiocarbon samples were clean, with little evidence of modern contaminants such as uncharred seeds, root mat, and leaf litter. No carbonized root fragments were encountered in the samples. One partially carbonized wood fragment was removed from the Lot 21 sample.

CONCLUSIONS AND RECOMMENDATIONS

The radiocarbon samples and faunal remains are indicative of excellent preservation of subsistence remains within the archeological deposit. All recovered faunal material is burned, and none of it appears to be modern. Hence, bone found within the Unit 7 context may represent redeposited prehistoric material. The authors recommend additional analysis of flotation samples from the Lot 23 context should this radiocarbon sample prove to date to the prehistoric occupation of site 75.5. The recovery of five carbonized seeds from this small radiocarbon sample indicates an exceptional state of macroplant preservation within Unit 7, Stratum I.

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1972 *Atlas of Animal Bones*. Elsevier Press, New York.

Synder, E. J.
2001 *Beaver (Castor canadensis): Wildlife Profiles*. University of New Hampshire Cooperative Extension Service (www.wildlife.state.nh.us/Beaver_facts.html)

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1980 *The Audubon Field Guide to North American Mammals*. Alfred A. Knopf, New York.

Appendix A. Bone Catalog

The following pages contain a complete catalog of the faunal remains in the Dow Pines Phase II assemblage from site 75.5. This catalog was generated using

Microsoft Excell 4.0 software for the Macintosh, and formed the basis for the tables included in the subsistence studies report. Each row is sequentially numbered for the assemblage and represents a single record. Each of the 16 columns contains specific information about the bones listed in each record. The columns are detailed below.

Columns 1-4: Provenience, in this case bag number, unit, stratum, and level.
Column 5: NISP is number of individual specimens in each record.
Column 6: Taxon is the most specific taxonomic identification possible.
Column 7: BP is body part.

1. CRA=cranial
2. MAXT=maxilla with teeth
3. DEN=dentary
4. DENT=dentary with teeth
5. TTH=loose tooth
6. ATL=atlas
7. AXI=axis
8. CVRT=cervical vertebra
9. TVRT=thoracic vertebra
10. LVRT=lumbar vertebra
11. SYN=synsacrum
12. SAC=sacrum
13. CAU=caudal vertebra
14. VRT=unspecified vertebra
15. RIB=rib
16. SCP=scapula
17. COR=coracoid
18. CLV=clavicle/furculum
19. STE=sternum
20. HUM=humerus
21. RAD=radius
22. AST=astragalus
23. CAL=calcaneus
24. ULN=ulna
25. CAR=carpal
26. CMC=carpometatacarpus
27. PHA1=first phalange
28. PHA2=second phalange
29. PHA3=third phalange/ungual/digit III
30. PAT=patella

31. PHA=unspecified phalange
32. PEL=pelvis
33. INN=innominate
34. ACE=acetabulum
35. ILM=illium
36. ISC=ischium
37. PUB=pubis
38. FEM=femur
39. PAT=patella
40. TIB=tibia
41. TBT=tibiotarsus
42. FIB=fibula
43. TAR=tarsal
44. TMT=tarsometatarsus
45. MT=metatarsal
46. LBN=unspecified long bone
47. UD=unidentified
48. OTH=other
49. SHL=shell
50. SLH=shell with hinge portion present (bivalves)
51. MET=unspecified metapodial
52. COS=costal cartilage
53. CRP=carapace
54. PLA=plastron
55. SPN=spine
56. SCL=scale
57. CLEI=cleithrum
58. CHYA=ceratohyal
59. C/T=unspecified carpal/tarsal
60. INC=incisor
61. MANC=mandibular canine
62. MAXC=maxillary canine
63. PRE=preoperculum
64. OCC=occipital
65. INC=incisor
66. MOL=molar
67. PMOL=premolar
68. ANT=antler
69. C/P=carapace/plastron
70. SDS=second dorsal spine
71. EPI=epihyal
72. URO=urohyal
73. TPCV=transverse process of complex vertebra
74. PSPN=pectoral spine
75. PER=peripheral

76. QUAD=quadrate
77. ART=articular
78. AUD=auditory meatus
79. BSPT=basipterygium
80. ZYG=zygomatic arch
81. CRT=ceratohyal
82. ORB=orbital
83. CUB=cubonavicular
84. PS=parasphenoid
85. PTG=pterigiophore
86. MC=metacarpal
87. OPE=operculum
88. PREM=premaxilla
89. SUCL=supracleithrum
90. EPI=epiphysis
91. PEPI=proximal epiphysis
92. DEPI=distal epiphysis
93. HYO=hyoid
94. HMD=hyomandibular
95. CUN=cuneiform

Column 8: POR is portion.

1. FR=fragment, otherwise unspecified
2. SH=shaft
3. CO=complete
4. ANT=anterior
5. MED=medial
6. POS=posterior
7. INF=inferior
8. SUP=superior
9. PX=proximal end
10. PSH=proximal plus partial shaft
11. DS=distal end
12. DSH=distal end plus partial shaft
13. PSE=proximal shaft minus epiphysis
14. DSE=distal shaft minus epiphysis
15. SP=complete shaft/bone and proximal end
16. CD=complete shaft/bone and distal end
17. CS=complete shaft

Column 9: PxF is proximal/anterior fusion state. UF=unfused, PF=partially fused, F=fused, blank=no data

Column 10: DxF is distal/posterior fusion state. UF=unfused, PF=partially fused, F=fused, blank=no data

Column 11: SYM is symmetry. L=left, R=right, A=axial, LLMR=lateral left or medial right, MLLR=medial left or lateral right, blank=unknown

Column 12: BN is number of burned fragments.

Column 13: RD is the number of fragments with rodent gnaw marks. N=no evidence of gnawing
Column 14: CN is the number of fragments with carnivore gnaw marks. N= no evidence of gnawing
Column 15: Bone weight in grams.
Column 16: Comments. Comments or additional information on bone in the record.

APPENDIX V.

RADIOCARBON DATA SHEETS, BETA ANALYTIC, INC.

BETA

BETA ANALYTIC INC.

DR. M.A. TAMERS and MR. D.G. HOOD

UNIVERSITY BRANCH
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305/667-5167 FAX: 305/663-0964
E-MAIL: beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Mr. Douglas Kellogg

Report Date: 3/1/01

John Milner Associates, Inc.

Material Received: 1/19/01

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 151774	340 +/- 60 BP	-25.6 o/oo	330 +/- 60 BP

SAMPLE : LOT 21
ANALYSIS : Radiometric-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1440 to 1660 (Cal BP 510 to 290)

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 151776	690 +/- 70 BP	-26.1 o/oo	670 +/- 70 BP

SAMPLE : LOT 26
ANALYSIS : Radiometric-Standard delivery
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid
2 SIGMA CALIBRATION : Cal AD 1240 to 1420 (Cal BP 710 to 540)

NOTE: An additional sample was cancelled (as instructed).

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

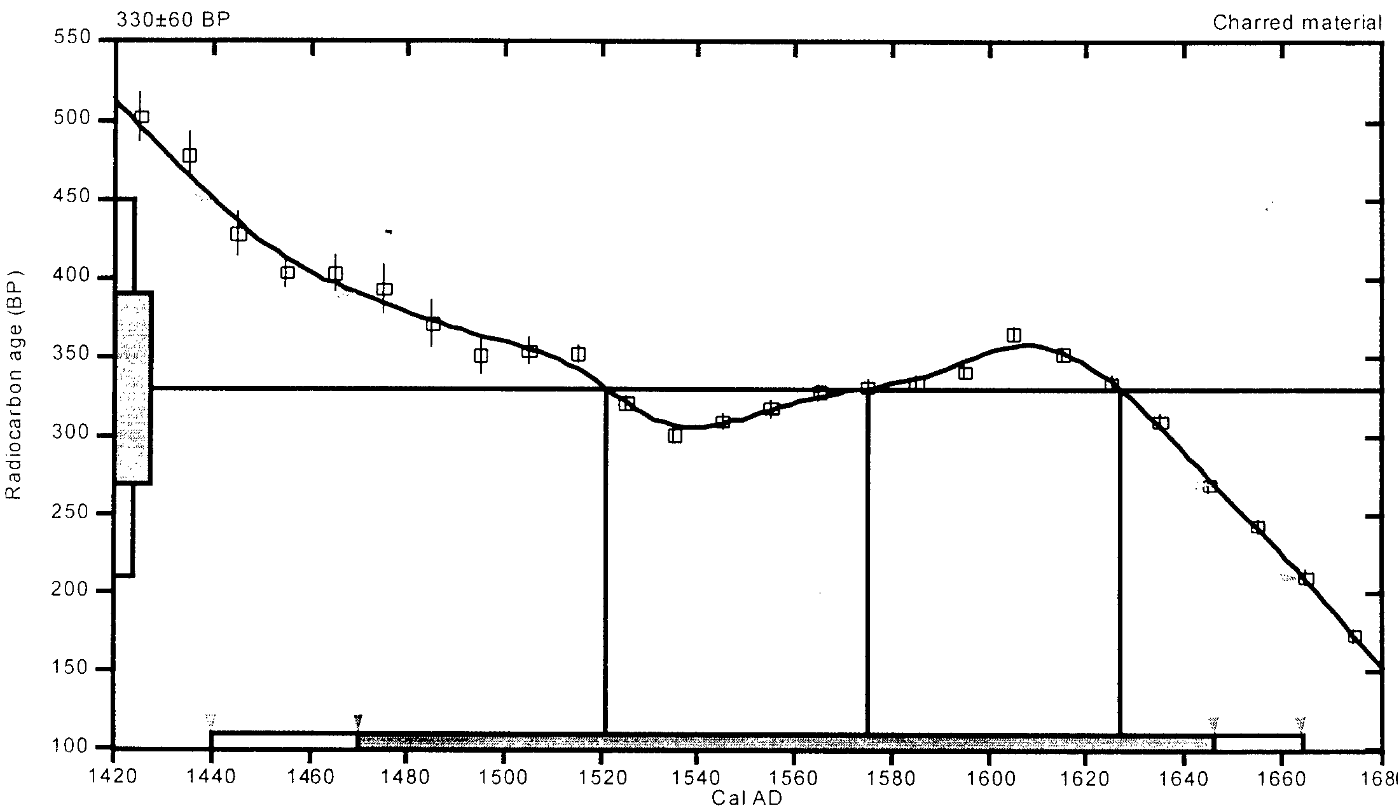
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.6:lab. mult=1)

Laboratory number:	**Beta-151774**
Conventional radiocarbon age:	**330±60 BP**
2 Sigma calibrated result: (95% probability)	**Cal AD 1440 to 1660 (Cal BP 510 to 290)**

Intercept data

Intercepts of radiocarbon age with calibration curve:	Cal AD 1520 (Cal BP 430) and Cal AD 1580 (Cal BP 380) and Cal AD 1630 (Cal BP 320)
1 Sigma calibrated result: (68% probability)	Cal AD 1470 to 1650 (Cal BP 480 to 300)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Inc.

4985 SW 74 Court, Miami, Florida 33155 USA • Tel: (305) 667 5167 • Fax: (305) 663 0964 • E-Mail: beta@radiocarbon.com

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.1:lab. mult=1)

Laboratory number: **Beta-151776**

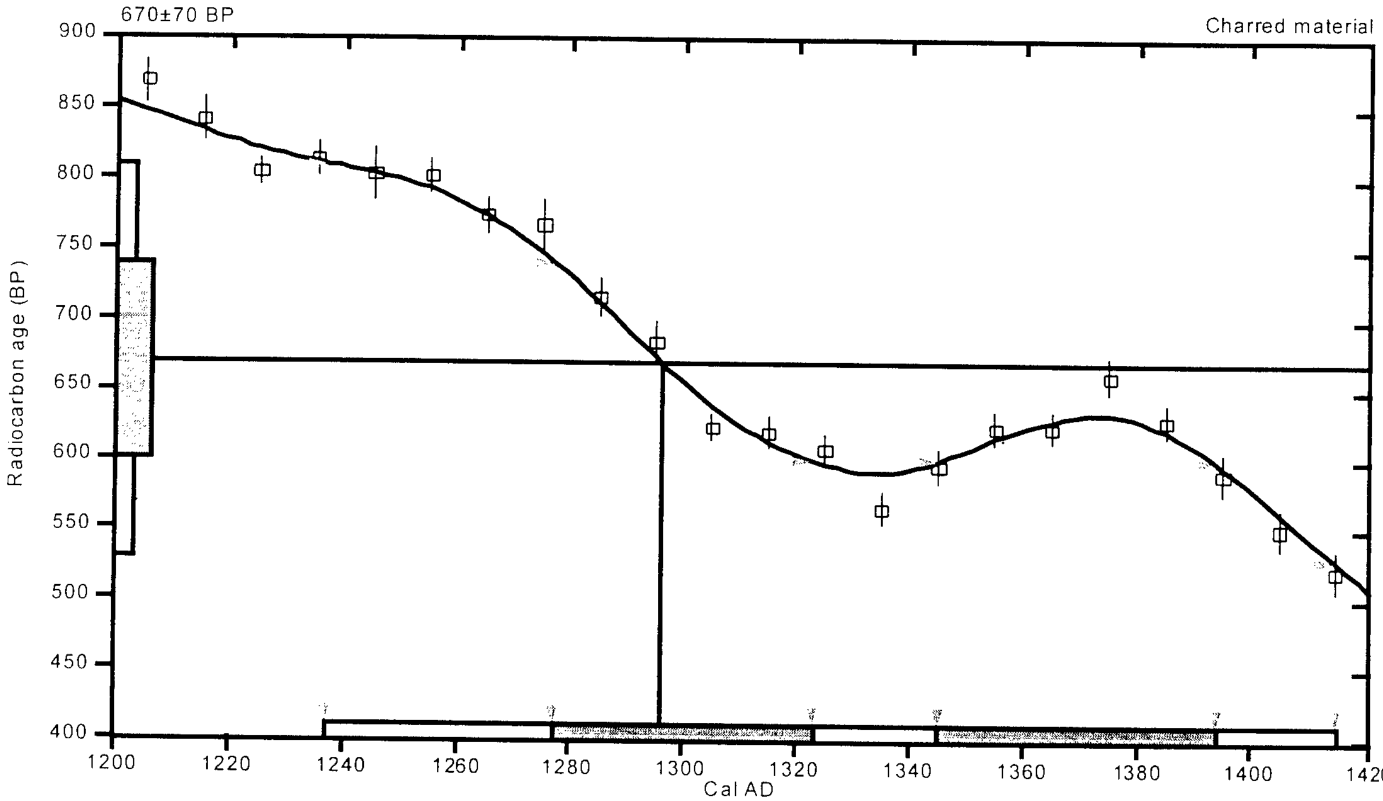
Conventional radiocarbon age: **670±70 BP**

2 Sigma calibrated result: (95% probability) **Cal AD 1240 to 1420 (Cal BP 710 to 540)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 1300 (Cal BP 650)

1 Sigma calibrated results: (68% probability) Cal AD 1280 to 1320 (Cal BP 670 to 630) and Cal AD 1340 to 1390 (Cal BP 600 to 560)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

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APPENDIX VI.

FLAKE ATTRIBUTE ANALYSIS

FLAKE ATTRIBUTE ANALYSIS DATA

SITE: DOW PINES AREA 5 **SITE NUMBER: 75.5**
PROJECT CODE: DOWPINE2 **ANALYST: D. Kellogg** **DATE: 3 March 2001**

Lot #	Material	Type	Size	Weight	Cortex	Edge	Scars	Platform	Termination
1	F	C	8	15.3	A	P	8	T	F
3	F	C	4	1.5	A	M	3	R	F
4	Q	C	2	0.2	A	P	3	T	F
4	F	D	2	0.6	A	A	2	A	F
4	F	D	3	0.6	A	A	5	A	F
5	F	C	2	0.4	A	M	3	R	H
8	F	C	2	1.0	A	M	2	T	F
9	F	L	2	0.6	A	M	8	R	F
10	F	L	3	0.9	A	U	5	T	A
11	Q	L	1	0.2	A	P	3	R	F
11	F	C	1	0.1	A	P	3	T	F
11	F	C	2	0.4	A	M	4	R	F
12	F	P	1	0,2	A	M	4	R	A
12	F	D	1	0.2	A	A	2	A	H
12	F	C	2	0.1	A	M	3	R	A
29	F	D	1	0.1	A	A	2	A	F
14	F	P	4	1.3	A	M	6	R	A
14	F	C	5	3.7	A	M	1	F	H
14	Q	C	1	0.2	A	P	3	F	F
14	F	L	1	0.2	A	M	3	R	F
14	F	C	4	0.9	A	M	3	R	F
14	F	D	2	0.3	A	A	3	A	F
14	F	P	2	0.5	A	M	2	R	A
14	F	P	2	0.4	A	M	3	R	A
14	F	C	2	0.5	A	M	4	F	H
14	F	C	2	0.3	A	P	4	F	F
14	F	P	3	0.6	A	P	7	R	A
16	F	C	3	1.6	A	M	4	R	F
17	Q	P	2	0.4	A	P	3	F	A
17	F	C	4	1.5	A	M	6	I	F
18	F	D	4	2.5	A	A	2	A	F
18	F	C	4	2.7	A	P	3	R	F
18	Q	C	1	0.3	A	M	2	T	F
18	Q	D	2	0.7	A	A	1	A	F
18	F	C	2	0.4	A	P	2	T	F
18	F	C	3	0.9	A	M	2	R	F
19	Q	L	2	0.4	A	P	3	T	F
19	Q	C	2	0.3	A	M	3	R	F
19	O	C	2	0.5	A	M	4	R	F

FLAKE ATTRIBUTE ANALYSIS DATA

SITE: DOW PINES AREA 5 **SITE NUMBER: 75.5**
PROJECT CODE: DOWPINE2 **ANALYST: D. Kellogg** **DATE: 3 March 2001**

Lot #	Material	Type	Size	Weight	Cortex	Edge	Scars	Platform	Termination
19	F	D	1	0.2	A	A	3	A	F
19	F	C	1	0.1	A	M	3	R	F
19	F	D	1	0.1	A	A	2	A	F
19	F	C	1	0.1	A	M	3	F	F
19	F	C	1	0.1	A	P	4	F	F
19	F	C	2	0.7	A	P	5	I	F
19	F	P	2	0.3	A	M	2	T	A
19	F	P	2	0.3	A	M	2	R	A
19	F	M	2	0.2	A	A	2	A	A
19	F	C	4	1.4	A	P	5	R	F
19	F	C	3	1.0	A	M	4	R	F
19	F	C	3	0.8	A	M	7	R	F
19	F	M	2	0.3	A	A	2	A	A
19	F	P	2	0.8	A	M	3	F	A
19	F	C	2	0.4	A	M	3	R	F
20	Q	D	3	1.0	A	A	3	A	F
20	F	C	1	0.1	A	M	3	R	F
20	F	P	1	0.2	A	M	3	R	A
20	F	C	3	0.7	A	M	3	F	F
20	F	C	4	1.6	A	M	3	R	F
20	F	C	5	3.8	A	P	5	R	F
21	R	P	3	0.2	A	M	3	I	F
21	F	P	2	0.3	A	M	6	T	F
21	C	C	1	0.1	A	P	2	F	F
21	F	C	7	9.4	A	M	6	I	F
21	F	C	7	17.2	A	P	4	T	F
21	Q	D	1	0.2	A	A	2	A	F
21	Q	C	1	0.2	A	A	2	A	F
21	F	C	1	0.1	A	M	3	R	F
21	C	D	2	0.7	A	A	3	A	F
22	Q	D	3	1.8	A	A	3	A	F
24	Q	C	3	1.7	A	M	5	F	H
24	Q	L	3	0.8	A	M	2	I	A
24	F	C	5	3.7	A	M	4	R	F
24	F	C	5	2.8	A	P	4	F	F
24	F	C	4	1.4	A	M	3	R	F
24	Q	C	1	0.3	A	M	4	R	F
24	Q	C	1	0.2	A	P	2	F	F
24	Q	D	1	0.1	A	A	3	A	F

FLAKE ATTRIBUTE ANALYSIS DATA

SITE: DOW PINES AREA 5 **SITE NUMBER: 75.5**

PROJECT CODE: DOWPINE2 **ANALYST: D. Kellogg** **DATE: 3 March 2001**

Lot #	Material	Type	Size	Weight	Cortex	Edge	Scars	Platform	Termination
24	F	D	3	1.2	A	A	3	A	F
24	C	D	2	0.3	A	A	2	A	F
24	F	C	2	0.2	A	P	2	F	F
24	F	C	1	0.2	A	M	3	R	F
24	F	C	4	2.5	A	P	4	R	F
24	F	P	3	1.8	A	M	3	R	A
24	C	D	4	1.3	A	A	3	A	F
24	F	C	3	1.3	A	P	2	R	F
24	F	C	2	0.6	A	M	3	R	F
24	F	D	2	0.2	A	A	2	A	F
24	F	C	2	0.5	A	M	3	R	F
24	F	C	2	0.3	A	M	3	F	F
24	F	C	2	0.2	A	M	3	F	F
24	F	C	1	0.3	A	P	2	T	F
24	F	C	2	0.3	A	P	2	R	F
24	F	P	1	0.1	A	M	2	R	F
24	F	L	2	0.3	A	P	1	F	F
24	F	L	1	0.2	A	M	3	R	F
24	F	C	2	0.2	A	P	2	R	F
24	F	P	1	0.3	A	P	3	F	A
24	F	P	2	0.3	A	M	4	R	A
24	F	P	1	0.2	A	P	2	R	A
24	F	P	1	0.2	A	M	3	R	A
24	F	C	1	0.2	A	M	3	R	A
25	F	P	1	0.1	A	M	2	R	F
27	F	P	2	0.6	A	M	2	R	A
27	F	L	5	4.1	A	M	2	F	F

Flake Attribute Analysis Data Form

Key to Flake Attribute Coding:

Lot #: Artifact catalog number, or arbitrary designation (eg. 1A, 1B, etc.)

Material type: F = Felsite; Q = Quartz; C = Chert; O= Other

Type (Type of flake): C = Complete; P = Proximal frag.; D = Distal frag.; L = Longitudinal fragment
M = Midsection

Size (Flake size class): 1 = <3 mm; 2 = 3-5 mm; 3 = 6-10mm; 4 = 11-15mm; 5 = 16-20mm;
6 = 21-25mm; 7 = 26-30mm; 8 = >30mm

Cortex (cobble cortex): A = Absent; P = Present; I = Indeterminate; W = Bedrock weathering rind

Edge: A = Platform absent; U = Uniface; B = Biface; S = Microstepped; G = Ground
P = Plain, unmodified; (Observations on dorsal side of flake at the platform)

Scars = Number of flake scars on dorsal face of the flake.

Platform (Platform shape): F = Flat; R = Round; T = Triangular; A = Absent; I = Indeterminate

Termination: A = Absent; F = Feather; H = Hinge; S = Step; P = Plunge; X = Axial

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APPENDIX VII.

FIRE-CRACKED ROCK (FCR) ATTRIBUTE ANALYSIS

FIRE-CRACKED ROCK ATTRIBUTE ANALYSIS DATA

SITE: DOW PINES AREA 5 **SITE NUMBER: 75.5 ME**
PROJECT CODE: DOWPINE2 ANALYST: N. SUTKUS **DATE: 01-19-01**

Lot	Mater	Weight	Cortex	MaxSize	Fractr	Usage	Comment
12	Q	34.6	A	45	5	N	
12	Q	1.7	A	12	5	N	
12	F	11.6	I	53	4	N	
12	F	59.5	P	59	4	N	
12	F	97.7	P	71	4	N	
12	F	26.5	P	44	4	N	
12	F	19.6	P	37	4	N	
12	F	7.7	A	26	4	N	
12	S	53.2	I	50	4	N	
12	G	16	P	34	4	N	
12	G	9.9	A	27	4	N	
12	G	10.5	P	32	4	N	
12	G	10.6	P	33	4	N	
12	G	6.6	P	27	4	N	
12	G	5.7	A	21	4	N	
12	G	8.3	A	35	4	N	
12	G	25.3	A	42	4	N	
12	G	18.3	A	37	4	N	
12	G	19.1	A	38	4	N	
12	G	22.3	A	37	4	N	
13	F	11	A	33	4	N	
15	F	66	A	56	4	N	
20	Q	40.3	P	47	2a	N	
20	Q	22.1	P	37	2a	N	
20	F	7.6	P	38	4	N	
21	F	27.7	A	45	4	N	
21	F	99	P	64	4	N	Some reddening
21	F	21.1	A	53	4	N	
21	F	66.4	A	52	4	N	
21	G	61.8	P	59	4	N	
21	G	52.5	P	53	4	N	
21	G	6.3	A	36	5	N	
21	F	17.5	A	33	4	N	
21	F	33.9	A	46	4	N	Some reddening
21	F	31.7	A	47	4	N	
21	G	22.1	A	48	4	N	
21	F	109.7	P	80	4	N	
21	G	12.3	A	45	4	N	
21	G	4	A	30	4	N	
21	G	10	A	37	4	N	

FIRE-CRACKED ROCK ATTRIBUTE ANALYSIS DATA

SITE: DOW PINES AREA 5
PROJECT CODE: DOWPINE2

ANALYST: N. SUTKUS

SITE NUMBER: 75.5 ME
DATE: 01-19-01

21	G	10.4	A	39	5	N	
21	F	1.9	A	24	0	N	
21	Q	75.6	A	54	5	N	
21	Q	87.8	P	56	5	N	
21	Q	6.1	A	25	5	N	
21	Q	4.9	A	20	5	N	
21	Q	3	A	18	5	N	
21	Q	5.5	P	32	5	N	
21	Q	3	A	23	5	N	
26	Q	28.1	A	40	5	N	
26	Q	148.5	A	73	5	N	Some reddening
26	Q	182.9	A	71	5	N	Slight reddening
26	Q	112.6	A	73	5	N	
26	G	31.7	P	52	2a	N	
26	G	89.2	P	61	4	N	
26	F	140.5	I	87	5	N	
26	F	27	P	37	2a	N	
26	F	379.2	P	95	4	N	Some reddening
26	F	75.2	P	59	4	N	Slight reddening
26	F	79.6	P	83	4	N	
26	F	12.4	A	39	4	N	

Fire-Cracked Rock Attribute Analysis Data

Key to FCR Attribute Coding:

Lot #: Artifact catalog number, or arbitrary designation (e.g.. 1A, 1B, etc.)

Material: Type of lithic material; G = Granite; S = Sandstone; F = Felsite; Q = Quartz; O = Other

Weight: Weight in grams

Cortex (cobble cortex): A = Absent; P = Present; I = Indeterminate; W = Bedrock weathering rind

Max.Size: Length of maximum dimension in mm

Fracture Type: Classification scheme of Yoon (1986): 0 = Reddening 1 = Apple core chunks, highly crenellated; 2a = Pot lid fragment; 2b = Source of pot lids; 3 = Potlid with crenellations; 4 = classic FCR; 5 = Same as 4 but with surface crenellations; 6 = Crumbling, not one of the other types; 9 = Not FCR

Usage: N = None; A = Abrasion; B = Battering; C = Core (flaking); G = Groove(s); F = Facets; P = Pit(s); O = Other, explain in comments.

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Yoon, D., 1986. *The Analysis of Variability in Fire-Cracked Rock*. Honors Thesis, Department of Anthropology, University of Michigan, Ann Arbor.

DOW PINES RECREATION AREA, HANCOCK COUNTY, MAINE

PHASE II ARCHEOLOGICAL EVALUATION OF SITE 75.5

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